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# THE JOURNAL
of
# THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

$3.00 per Annum, 25c per Copy
Vol. 7, No. 1

July 1937—June 1938

Published Monthly in Montgomery at 519 Dexter Avenue

CONTENTS

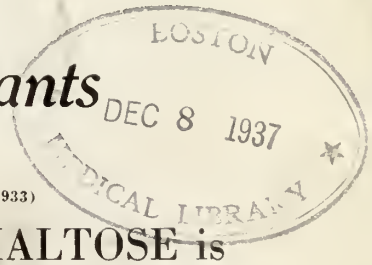
Cancer of the Colon and Rectum—The 1937 Jerome Cochran Lecture, by Dr. Frank H. Lahey, Boston ..... 1
The New Protamine Insulin in the Treatment of Diabetes Mellitus, by Dr. D. B. Snelling, Montgomery ..... 9
Mucocele of the Appendix—Report of Two Cases, by Dr. J. O. Morgan, Gadsden ..... 14
Editorials ..... 18
The Death of a Doctor ..... 18
Fees for Vaccine Administration Resumed ..... 19
Atlantic City Session of A. M. A. ..... 19
Transactions of the Association—1937 Session —Part I ..... 21
Department of Public Health ..... 34
Immunity in Malaria—First in a Series ..... 34
Meningitis in Alabama ..... 36
Continuity of Treatment in Syphilis ..... 36
Alabama's Oral Hygiene Program ..... 37
Permanent Improvement For Municipal Mosquito Control ..... 38
Truth About Medicines ..... 39

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*"the commonest ailment of infants in the summer months"*

(HOLT AND McINTOSH: HOLT'S DISEASES OF INFANCY AND CHILDHOOD, 1933)




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# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 1** **Montgomery, Alabama** **July 1937**


## CANCER OF THE COLON AND RECTUM

### THE 1937 JEROME COCHRAN LECTURE*


By

FRANK H. LAHEY, M. D.

Boston, Mass.


May I first express to you my deep appreciation for the honor you have conferred on me in asking me to give the 1937 Jerome Cochran Lecture. May I, in proper modesty, say also that I did not accept the invitation as an individual, nor do I present these remarks as such. On the contrary, the request to deliver this talk and the honor of giving the Jerome Cochran Lecture designate me, I believe, a representative of a group, all of whom have been interested in the subject. This group consists of surgeons, proctologists, gastro-enterologists and anesthetists in the Clinic.

I desire to present a variety of aspects of the subject of carcinoma of the colon and rectum; to interest, first, the general practitioner and thus perhaps get earlier diagnoses and higher operabilities; and, second, the surgeons and thus possibly stimulate a desire for lower mortality rates, better colostomy control and so greater willingness on the part of patients to accept this procedure with a resulting higher percentage of cures.

If I present a few of the figures based upon our experience with these lesions, it will perchance make it possible for me more reasonably to draw deductions from them. We have now had something over six hundred cases of carcinoma of the colon and rectum. Last year one hundred forty cases were done. The operability up to two years ago was 54 per cent and the mortality 8¼ per cent. Within the last two years the operability has risen to 70 per cent with an increase in mortality to 10¾ per cent.

*Delivered before the Association in annual session, Birmingham, April 21, 1937.

*From the Lahey Clinic.

I wish particularly to say a few words about mortality since it can be kept at almost any figure. Not only that but mortality figures can be quite misleading. If all people with complicating lesions, such as kidney, heart and vascular changes, and if all people with advanced carcinomatous lesions are rejected, then the death rate can be kept quite low. This, however, would be a very undesirable position to take.

It has been our feeling that one should widen the operability in these cases as much as possible. We have, even within the past two years, so increased its range that it has included patients who have metastases to their liver, provided the carcinoma in the colon, rectum or rectosigmoid was removable with a reasonable degree of risk. We think that this is important because, if the local lesion can be removed even in the presence of metastases, life is prolonged, it is made infinitely more comfortable and the eventual fatality is made very much easier.

It is my desire to call attention, also, to the hopefulness of carcinoma of the rectum and colon and some of the reasons for it. When one realizes that of all the carcinomas of the colon which we have removed, 42 per cent are alive and well without recurrence after five years, and that of all the cancers of the rectum which we have removed, 46 per cent are alive and well after five years, it is at once evident that there are several favorable factors connected with this lesion.

These factors are multiple: The first one is that so many of the carcinomas of the colon and rectum start in lesions which are probably in the beginning benign, such as an adenoma of the rectum which has become either a malignant adenoma or an adenocarcinoma, or a papilloma of the rectum which has become malignant at the base. This provides a reasonably low grade of malignancy. In addition to that, when one realizes that 75 per cent of all the lesions of

2939-1

the large intestine are in the sigmoid, rectosigmoid or rectum, the explanation of early diagnoses becomes evident. It is in this region, of course, close to the anus that ulceration results in the early discharge of bright blood and calls attention to the possible condition. It is in this lesion, particularly at the rectosigmoid, that obstruction is prone to occur because of the solid character of the feces; and if there be any narrowing of the bowel at this point, obstructive symptoms appear. It is in this region that a new growth gives the feeling of a foreign body in the rectum or a feeling of incomplete emptying of the rectum. All of these features tend to call attention to the lesion within a reasonably early time and so make its diagnosis possible while still relatively curable.

Add to the above facts that, anatomically, this lesion can be removed quite radically together with its adjacent lymph nodes and a wide margin of colon on either side of the carcinoma and one then realizes why it is possible to have 42 and 46 per cent of these patients alive and well over five years without recurrence.

It is fortunate that the diagnosis of this disease state in the region in which 75 per cent of all of the carcinoma of the colon occurs is not particularly difficult. The diagnosis can be made here by direct and indirect visualization of the lesion. In those occurring in the rectum, in the rectosigmoid and the low sigmoid, proctoscopy will in most of the cases make it possible to demonstrate the lesion by direct vision and its actual grade of malignancy by biopsy report. In those cases located so high that proctoscopy fails to demonstrate the lesion, bismuth enema by indirect visualization can be depended upon to demonstrate its presence or absence.

It is of interest to note that in our series of carcinomas in the rectum and sigmoid, 80 per cent were palpable either through the rectum or abdomen or could be visualized by the proctoscope. This is a high percentage of cases in which the lesion can be demonstrated either by vision or palpation.

While speaking about the matter of proctoscopy, one should, I think, stress the value of routine proctoscopic and sigmoidoscopic examination. Too little has been said about the early discovery of papillomas, polyps and adenomata of the rectum and their removal as a preventive measure against the development of a later carcinoma.

Proctoscopy is by no means difficult. It does not require a great amount of technical skill or experience for its successful accomplishment. General men are a little bit apt to think that they are not equipped to do it when, as a matter of fact, they could probably do it in most cases about as well as anyone after they had learned a few of the simple tricks connected with it. A proctoscope is not expensive, it is not a complicated instrument, it does not tend to get out of order and it does not change materially in style from year to year.

One of the most important features dealing with success or failure in proctoscopy is the matter of the position in which the patient is placed when it is done. Proctoscopic tables are available which can be tilted with the patient in the head-down position but these can be manufactured by any carpenter; that is, without the tilt. If a patient is placed over the end of the table, the table sloping slightly toward the feet so that they do not fall off, with the head on a pillow on the floor, the rectum and sigmoid hang by their attachment to the anus. The introduction of a proctoscope then makes the ballooning of the rectum and rectosigmoid relatively simple, accumulated material, instead of gravitating into the proctoscope, gravitates up the sigmoid away from the lesion and makes exposure more simple.

I would strongly advise all men who are in general practice to become familiar with the proctoscope, to provide themselves with such a simple table that can be made by sawing off the legs on one end of a table so that it slopes, and to employ proctoscopy more often. When polyps and adenomata are found, they can be removed by simple fulguration. Many patients will thus be saved from a later possible carcinoma.

Another point which I wish to make particularly in connection with carcinoma of the colon and rectum is that we are all quite apt to be satisfied when we discover a single lesion. When one realizes that so many of these carcinomas of the colon and rectum originate from previously existing benign lesions, it is not surprising then to appreciate that these can and not infrequently are

multiple in character. I have suffered the chagrin of removing a carcinoma of the rectum, implanting the end of a colon in the abdominal wall and within a few days have a pedunculated papilloma, which I had failed to discover, project itself from the opened lumen of the colostomy. I have removed a carcinoma of the sigmoid only to find at a later date a coincident carcinoma of the splenic flexure. At times, in the course of operation for carcinoma of the colon and rectum, I have demonstrated adenomata and papillomata at other levels in the colon. It is, therefore, important when the diagnosis is being made not only to be interested in demonstrating the lesion in which the carcinoma has developed but also, particularly by means of contrast enemas, to investigate the remainder of the colon to make sure there are no other coincident lesions present.

It is of importance also, following removal of carcinomas of the colon, to submit patients to follow-up bismuth contrast enemas at times to make sure that other lesions are not present or developing.

In any discussion of the management and diagnosis of carcinoma of the colon, we have always made it a custom to divide the colon into three segments: the proximal colon extending from the head of the cecum up to the splenic flexure; the descending colon extending from the splenic flexure to the rectosigmoid; and the rectum extending from the rectosigmoid to the anus. If we divide the colon into these three segments and discuss each segment separately, it makes possible a practical conception of the factors associated with lesions at varying levels in the colon.

Twenty-five per cent of all the carcinomas of the colon arise in the proximal section of the colon, that section running from the cecum to the splenic flexure. The function of this portion of the colon has a great deal to do with the way lesions here evidence themselves and also with the mortality of operative procedures for lesions at this level. One of the striking features of carcinoma of the ascending colon is its ability to produce secondary anemia. Whether this is due to the fact that this section of the colon is concerned with the absorption of fluids; whether it is due to the fact that the fluid-filled contents of this section of the colon harbor organisms of high virulence, and therefore, as a result of this, there is a good deal of absorption of toxic material, or whether it has to do with blood destruction in relation to the size of the ulcerating area as suggested by Alvarez, no one knows but it is a fact that in any patient with an unexplained secondary anemia, one should at least seriously consider the possibility of this severe secondary anemia being due to an undemonstrated malignant lesion of the ascending colon. Failure only last year to apply this very teaching, which I have preached from one end of the country to the other, to a patient coming to the Clinic, jaundiced and with definite gallstones, resulted in my failing to diagnose a very definite carcinoma of the ascending colon associated with common duct stones and jaundice. Had I given heed to my own preaching and realized that in this patient with a hemoglobin of 30 per cent the presence of a common duct stone and jaundice was not a satisfactory explanation for the anemia, further investigation would have saved me the chagrin of finding carcinoma of the cecum following the removal of a gallbladder and a common duct stone in a jaundiced patient.

Due to the fact that lesions of the ascending colon arise on the lateral wall of the colon and surround the colon only after they have existed probably for over six months, and due to the fact that the contents of the colon at this level are liquid in character, obstructive symptoms here are rare. The only exception is when the lesion is close to the ileocecal valve and involves that structure; in which event obstructive symptoms may then appear. Fresh blood is not associated with lesions at this plane. It is not common for the lesions in the ascending colon to produce any profuse degree of hemorrhage and the amount of blood which is lost from such a lesion is mixed with the liquid contents of the ascending colon so that its presence is usually not appreciated in the stool. On the other hand, rarely will an examination for occult blood prove negative in the presence of a malignant lesion anywhere in the large bowel.

Malignant lesions, particularly in the lower end of the cecum, are often quite readily palpable, especially in thin people. This

is likewise true of malignant lesions of the transverse colon. Lesions, however, in the hepatic flexure, situated as it is deep in the abdomen and under the costal arch, are often not palpable until they have reached a considerable size.

If a patient lying flat on his back is asked to elevate his extended right leg voluntarily and hold it elevated, the contraction of the psoas and iliacus muscles will so raise the cecum from its depth within the right iliac fossa that a lesion at this level frequently becomes more readily palpable.

The x-ray diagnosis of lesions of the ascending colon is a little bit more complicated than that of lesions of the transverse and descending colon and the sigmoid. This is due to the fact that inflammatory lesions about the head of the cecum often simulate malignant lesions; and also that at this level tuberculosis is so frequently seen. Due to the further fact that the ascending colon is often but partly intraperitoneal and without a long mesentery, this segment of the colon lends itself less well to clear roentgenologic visualization.

All of the factors above discussed in relation to diagnosis very definitely enter also into the operative risk rate associated with the removal of malignant lesions of the ascending colon. Due to the fact that the wall of the ascending colon is thin and sacculated; that it contains, distinctly in adipose people, many fat tabs; that it possesses, in addition, an anterior and posterior longitudinal band; and due to the fact particularly that it is filled with feces of a liquid character containing highly virulent organisms, primary resection with primary anastomoses at this level are in our opinion extremely dangerous. The wall of the large bowel does not lend itself as favorably to anastomoses as does the wall of the small intestine. The blood supply of this segment of the bowel is less profuse and the danger of spilling of contaminated contents greater. It is for these reasons that the modified Mikulicz type of operation, with the removal of all of the ascending colon and the application of a loop of ileum on the double-barreled plan to the transverse colon together with a staggered loop of ileum which I have described and published, was devised. With this operation all danger of fecal contamination has been entirely overcome.

Twenty-two per cent of all the carcinomata of the colon and rectum originate in that portion of the colon extending from the splenic flexure to the rectosigmoid. At this level the physiology of the colon is quite different from that of the proximal colon which we have just been discussing. Here the feces is solid in character, organisms of high virulence, owing to the solidity of the feces, do not float about in satisfactory nutrient media but obstructive symptoms are much more apt to occur. Dark blood at this level is much more common than in the proximal colon but bright blood less common than in that portion of the colon starting at the rectosigmoid and extending to the anus. In our entire series, blood has been present and visible in the stools in 30 per cent of the cases. At the level of the splenic flexure, as at that of the hepatic flexure, the palpability of a lesion is low, due, as on the opposite side, to the fact that splenic flexure lesions are well up under the costal margin, deep in the abdomen and for this reason difficult of palpation. The difficulty of palpation at this point is well illustrated by a case operated on in the Clinic last year in which a small annular carcinoma of the splenic flexure was adherent to the pedicle of the spleen. One can realize in this location just how impossible it would have been to have palpated it. The dangers of operation here, unlike those in the proximal colon, are not so much related to contamination from liquid feces and highly virulent organisms, as they are to solid feces impacting itself in the somewhat narrowed portion of the intestines where the union between the bowel ends or the lateral anastomosis is made, resulting in obstruction and dangerous tension upon the suture line. All of the risks of large intestine primary anastomoses such as have already been discussed, viz., the thinness of the wall of the colon, its limited vascularity, its sacculation and its fat tabs, are applicable to the dangers of primary anastomoses likewise at this level.

Fifty-three per cent of the carcinomas of the colon in our series have been found in the segment of the colon extending from the rectosigmoid to the anus. The physiology of this portion is related particularly to the matter of storage. Since this is largely a reservoir, this segment of the bowel pos-

sesses relatively scanty lymphatics as is true of the pelvis as a whole, and from it there is relatively little absorption. One, therefore, sees severe grades of secondary anemias only in the advanced cases. Practically all carcinomas from the rectosigmoid to the anus start on the lateral wall of the anus, either in an adenoma of the rectum or a papilloma which has become malignant at the base. For this reason, obstructive symptoms do not appear early in carcinoma of the rectum and rectosigmoid. When they do occur, it is usualy evidence that the lesion has existed from six months to a year as it is estimated that this amount of time is needed for a lesion starting on the lateral wall to so spread about the rectum that it can constrict that structure and produce obstruction. One should have in mind, therefore, that when a carcinoma of the rectum does produce obstructive symptoms it is usually evidence of the fact that the lesion is quite late. One should realize also, because of the facts already stated, that when secondary anemia does exist in carcinoma of the rectum, it is as a rule a bad sign and evidence of the cachexia associated with a lesion of considerable size and of considerable duration.

A mass was palpable by rectum or through the abdominal wall in 80 per cent of our cases. When one realizes that in eight out of ten cases a mass can be palpated, either through the abdominal wall or by rectum in lesions at this level, a diagnosis should be made early.

I wish to utter a particular warning concerning x-ray diagnoses of lesions at the rectosigmoid junction. It is here that we have made more mistakes by x-ray in the diagnosis of carcinoma of the colon than at any other situation in the colon. This is due to the fact that if a carcinoma originates at the rectosigmoid junction, the redundant sigmoid filled by the bismuth enema may so fall down over the rectosigmoid junction that the lesion is obscured and cannot be properly visualized. One is then misled into feeling that there is no defect present. All roentgenologists are familiar with this fact and overcome it by tilting the patient from side to side during their fluoroscopic examination, by putting the patient in the Trendelenburg position and thus dislocating the bismuth-filled redundant sigmoid so that the rectosigmoid junction can be visualized.

The two-stage operative procedure which bears my name and which was published in Surgery, Gynecology and Obstetrics on Cancer of the Colon and Rectum has made possible the application of the complete removal of the rectum and sigmoid in these lesions in our hands with a relatively low mortality rate and has also made possible the application of this procedure to people with the operative procedures which were hitherto at our disposal. We have been able to do one-stage abdominosacral removals of the rectum in ten per cent of our cases. We have done preliminary loop colostomies and posterior resections of the rectum in those aged and fat people constituting risks too bad to submit to other operative procedures in 20 per cent of our cases. We have done anterior resections of carcinomas low in the sigmoid or at the rectosigmoid in 20 per cent of our cases; and in 50 per cent, we have done the two-stage abdominosacral removal of the rectum which I have described.

There are a few generalities regarding the diagnosis of carcinoma of the rectum and sigmoid which I would like to discuss. The first one is alternating diarrhea and constipation. This manifestation has been stated in textbooks on surgery to be one of the outstanding symptoms of carcinoma of the colon and rectum. When one realizes that in one hundred consecutive cases in our series, this was present in but 8 per cent of the patients, it is evident that this is not a dependable diagnostic sign. We would strongly urge that no one wait for the presence of alternating diarrhea and constipation before arriving at the diagnosis of carcinoma of the colon. Its mechanism likely is evidence of the lateness of the lesion which produces these symptoms. In all probability what happens with alternating diarrhea and constipation is that there is moderate obstruction above the level of the lesion; that the feces in this lesion becomes solid, that it then produces irritation in the wall of the colon, resulting in a colitis with the outpouring of mucus, serum and pus, thus softening the inspissated feces and producing a diarrhea; that with the discharge of the accumulated feces, the inflammatory process in the wall quiets down and the cycle causing the symptoms is again

repeated. We would urge strongly that alternating diarrhea, the textbook picture which has been so repeatedly cited, is not a dependable diagnostic feature in carcinoma of the colon.

The most reliable diagnostic point in carcinoma of the colon is an alteration in bowel function. When one realizes that in our entire experience with carcinoma of the colon and rectum, if one reviews the history, there was very definite and tangible evidence of change in bowel function in 90 per cent of the cases, this then stands out, I believe, as the most dependable single feature in the diagnosis of carcinoma of the colon and rectum. Whenever any patient, certainly over thirty-five years of age, shows a definite alteration in bowel function such as unexplained diarrhea or unexplained constipation, a bismuth enema should immediately be advised in order that one may be certain that these changes are not the first indications of the presence of a carcinoma at some level in the large bowel. If we could get all patients even past forty years of age who have any alteration in their bowel function to submit to adequate investigation of their colon by bismuth enema, there would be many more early diagnoses of carcinoma of the colon and there would be many more patients definitely cured of this lesion. In a review of our records of a consecutive series of 270 proven cases of carcinoma of the colon and rectum, only 9 per cent had no change in bowel function.

What we need for earlier diagnoses of carcinoma of the colon and rectum is a more frequent application of bismuth enemas, the more frequent employment of proctoscopic examination and a more routine use of digital rectal examination.

In speaking of rectal examination, I wish to say just a few words. There appears to be something about a rectal examination that neither the patient nor the doctor likes; yet, there is no single thing in the diagnosis of abdominal lesions from which greater aid can be obtained. Rectal examinations are of great value in acute lesions of the abdomen, such as acute appendicitis, in postoperative temperature reaction following operations for acute appendicitis, in patients with carcinoma of the stomach to determine operability and particularly, of course, in patients suspected of carcinoma of the rectum or rectosigmoid.

Illustrating the value of rectal examination, in many a patient with unexplained postoperative temperature reaction, such an examination will reveal an inflammatory lesion in the pelvis, which may eventually result in a pelvic abscess so pointing that it may be drained through the rectum with complete relief and without further difficulty. In many carcinomas of the stomach, metastatic growths due to malignant cells gravitating into the pouch of Douglas can be palpated by rectum, thus avoiding the suffering, time and expense of an exploratory operation. Certainly in those patients giving symptoms suggesting lesions in the rectum or rectosigmoid, rectal examination will, as has already been stated, show the presence of such lesions, based upon our experience in 80 per cent of the cases.

Many rectal examinations are inadequately done. If one wishes to obtain all possible information by digital examinations of the rectum, they should be made in three positions. They should be done with the patient bending over the table in the ordinary position with the left hand palpating bimanually through the abdomen. They should be done in the knee-chest position; and they should be done with the patient squatting on the floor and instructed to strain down. By the latter method not infrequently a high rectosigmoid lesion will so descend that it can be palpated by the tip of the examining finger. From my own past experience, I would say that there has been no single measure the omission of which has resulted in more failures to arrive at the proper diagnosis in abdominal lesions than the omission of the digital rectal examination. Hardly a year goes by in which we do not see patients who have been operated upon for hemorrhoids or for a fistula with a carcinoma above the lesion which could easily have been discovered by either adequate rectal or proctoscopic examination.

I have already discussed the fact that many carcinomas of the large intestine could be avoided if adequate and routine proctoscopic examinations were carried out on more patients. The evidence of the truth of this statement is shown by the fact that 76 per cent of all the polyps discovered in the large intestine are found from the splenic flexure to the anus; and when one real-

izes that 75 per cent of all the carcinoma which occurs in the large intestine is found in the sigmoid, rectosigmoid, or rectum, it becomes evident by inference that many of these carinomas must have originated in previously existing polyps the removal of which by fulguration, after they had been discovered by routine proctoscopic examination, would have prevented the later occurrence of carcinoma.

Since it is impossible to present in this paper, as was done by slides and moving pictures at the time of its delivery, the technical details of the operative procedures which we have devised, reprints of which will be sent to any who request them, it will be sufficient then to discuss only some of the general aspects of the surgical treatment of carcinoma of the colon and rectum.

There is little that need be said about the relation of the patient's willingness to submit to operative procedures in carcinoma of the colon itself since, by the operative procedures which we have employed, not only can the section of bowel containing the malignant lesion be removed by a wide margin but by means of the two-stage modified Mikulicz procedure which we have described the fecal stream can and has been in all of our cases completely restored.

On the other hand, when we discuss the problem of the surgical treatment of carcinoma of the rectum quite a different situation arises. We believe very strongly that if many patients are to be cured of malignant lesions of the rectum, then the surgery which is applied to this lesion must be aggressive in character. For that reason, we have never had any interest in any operative procedure which involves merely local removal of the lesion. We have felt that the operative procedure applicable to this lesion should remove a wide segment of rectum and sigmoid together with all of the adjacent lymph glands into which the malignant cells may have drained.

Again and again we see patients with a very small malignant lesion in their rectum, perhaps not larger than my little fingernail. Not only do the patients but also frequently their family physicians urge upon us that they do not need complete removal of their rectum but that they should have their sphincter preserved and just the local removal either of a segment of colon at this level or a portion of the wall of the intestine containing the malignant lesion. This is utterly wrong in principle. It is futile to do such a limited operation on a lesion which has already spread upward and not infrequently into the lymph glands. Sentimental interest in the anus and unjustified resistance to an abdominal colostomy have and continue to cost many patients their lives needlessly. Our attitude has always been that the smaller the lesion the more necessary is it to be aggressive and radical in its removal because the greater the opportunity to accomplish a cure. We are distinctly of the conviction that, if one permits himself to become sentimentally persuaded by the patient to do operations that will preserve his anus, these operations will preserve his anus but he will frequently not be alive over a sufficient number of years to justify its being preserved.

There has been nothing we believe in the whole history of cancer of the rectum which has held back its progress more than the objection, not only of the laity itself but also of family physicians, to colostomy. This is by no means entirely the fault either of the laity or of physicians. Colostomies have a bad name because they have been in the past so often employed only in the hopeless cases with the result that the public at large and the family physician, who has had to care for the patient during the terminal stages of his disease, have visualized colostomy in these terms. In addition to this, it has frequently and still continues to be the practice of those who do not deal with colostomized patients in large numbers to do a colostomy on a patient to turn him loose and to permit him to work out his own salvation in its management. This will result in very bad results. Patients and family physicians have often had little or no experience with the measures and tricks which go with making colostomies function satisfactorily. Further than this, they are often improperly made. It should be definitely stated that there are no trick colostomies. There are none by which it is possible to accomplish any sphincteric control of the bowel. The colostomies made by making one or two twists in the implanted bowel do not result in any control. Those made by implanting loops of bowel beneath the rectus muscle do not result in

control. One must assume that there is no mechanical method whereby sphincteric action can be accomplished in relation to a colostomy.

A good colostomy is properly placed and has a good level of mucous membrane well above the skin. If a colostomy be too short when it is implanted upon the abdominal wall, it will retract into the abdomen so that the skin and mucosal levels will be the same. This will result in contraction of the skin, closure of the colostomy and a further operation will be necessary. If at least three inches of colon are brought out well above the skin, this will result in a high mucosal level above the skin. There will be no danger of contraction of the colostomy when a bag is to be worn at night, as must be the case following the irrigation done at night, the high mucosal level will retain the bag in place and the colostomy will function well. A left colostomy midway between the anterior superior spine and the umbilicus is as satisfactorily located as can be placed upon the abdominal wall.

Success in the management of a colostomy is similar to the success in almost all postoperative procedures. It is education of the patient by seeing him frequently during the first six months after the operation. He must be taught a diet which will accomplish constipation of his bowels. He must be taught to avoid those fruits and foods which will result in loose movements. His wife makes for him out of stork sheeting a small apron with a string in it which will tie around the lower portion of his abdomen. He sits upon the toilet, drops the stork sheeting into the toilet bowl, employs an irrigating can or douche bag placed at a moderate level above his head and introduces a catheter into his colostomy opening. This irrigation is done every second or third day and done at night. It is done at night in order that following the irrigation he may wear a bag throughout the night and thus permit all of the accumulated fluid to run out. In the morning, all of the fluid having run out, he will be able to put over the colostomy only a small wad of gauze retained in place by means of a belt. A very large majority of our patients who have had abdominosacral removal of the rectum wear no bags during the daytime, take an irrigation only every second or third night and are in no way bothered by odor, by disagreeable discharges or by soiling of their clothing. We have a large number of patients with colostomies upon whom complete abdominosacral removal of the rectum has been done in all kinds of occupations: Engineers, sea captains, basketball coaches, lawyers, priests, Sisters of Charity, teachers and people in all grades and walks of life who are living happy, satisfactory and useful lives.

It has been our experience that it takes from three to six months for a patient to obtain complete and satisfactory control of his colostomy. This is related undoubtedly, first, to the fact that it takes this time for him to be educated in the proper diet and management of his colostomy; and, two, that in six months' time the scar tissue about the colostomy has diminished it in size and in this time the colostomy becomes most satisfactory in character. It is, therefore, of the greatest importance that those who are interested in dealing with cancer of the rectum should keep, as we have and as everyone does who deals with these cases in large numbers, close contact with patients who have had this operation in order that they may not become discouraged regarding the colostomy and in order that they may be educated thoroughly in its management. By this plan their later lives can be made more happy and more satisfactory. There exists no group of patients in the world who are more appreciative and who are more grateful for the result than those from whom carcinomas of the rectum have been removed and who have been educated so that they can satisfactorily manage their colostomies. Hardly a week goes by but that some patient with whom we have previously had discussions regarding whether or not she or he would submit to colostomy does not come back to tell us how completely satisfied he is with his colostomy and how unnecessary his worries were about it.

If there has been one statement that has done harm to the problem of cancer of the rectum it is the unjustified statement of the laity, and also at times of physicians, that a colostomy is a living death. Not only is it not a living death but with a colostomy patients can and do, as we know from actual experience and contact with them, live just as satisfactory lives as with a normal anus.

So satisfied have many of these patients been with colostomies that they have urged upon us that, if there be patients in their part of the country who resist complete removal of their rectum because of the fear of a colostomy, they be permitted to interview them and to state to them from their experiences how wrong their attitude is.

In conclusion may I state again a few of the important points of this discussion. Cancer of the colon and rectum lends itself almost ideally to radical surgery. When 42 and 46 per cent non-recurrence at the end of five years can be reported it must be admitted that it is a curable disease. The diagnosis could be made much earlier if every patient with an alteration in bowel function past thirty-five years of age, or even thirty years of age, could be investigated. There is still an opportunity to increase the number of patients in whom the diagnosis is made early and thus increase the number of cases in which cures can be accomplished. Colostomy is not a living death and it is possible to so train patients that bowel function and bowel control can be accomplished just as satisfactorily as by way of the anus. Operative procedures and measures have been devised whereby radical removal of lesions of the colon and rectum can be done with a low mortality rate, a high operability, a relatively high curability. Since 75 per cent of carcinomas of the colon originate in the sigmoid, rectosigmoid, or rectum, since 80 per cent of the lesions located here are palpable by rectum or through the abdomen, since 90 per cent of all the carcinomas of the colon and rectum show in their history an alteration of bowel function, we need only closer attention to these details on the part of the patient and family physician to accomplish even more brilliant and striking results in this hopeful lesion.

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**Subtentorial Tumors**—Vertigo, dizziness, is common and there is a tendency to fall. Usually the patient falls toward the side on which the tumor is or forward or backward when it is in the midline. He early learns his weakness in this respect and tries to overcome it by walking or standing with his feet spread apart. He reels from side to side as he walks and whether in darkness or by good daylight, he staggers along like a drunken man.—*Coughlin, South. M. J., July* '37.

## THE NEW PROTAMINE INSULIN IN THE TREATMENT OF DIABETES MELLITUS*

By
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The discovery of insulin in 1922 by Banting and Best was a boon to diabetics by supplying to them the hormone necessary for the storage and oxidation of carbohydrate in the body. As this product became more purified, fewer local reactions occurred after its use but the blood sugar lowering effect became more abrupt, so that now the maximum effect of regular or old insulin ordinarily passes in 3 or 4 hours. This, physiologically, is admirably suited to the metabolism of exogenous carbohydrate or glucose as it is absorbed from the gut, but it is poorly adapted to the slow burning and transportation of glucose which has already been absorbed or converted in the body and stored; that is, endogenous glucose. To meet this requirement in a normal physiological manner, insulin must be liberated slowly and fairly evenly during the post-absorptive periods of the day. The normal pancreas performs both of these functions by producing a relatively constant supply of insulin for endogenous carbohydrate metabolism and by responding to extra carbohydrate intake with extra insulin production. In the diabetic, not only is exogenous sugar metabolism impaired but there is also impairment of endogenous sugar metabolism, and hence the need for a type of insulin that would have a slow, prolonged effect in order to maintain the blood sugar at normal levels for a greater length of time. It has been to meet this need that experiments have been in progress since the early days of insulin therapy to secure such a type of insulin by slowing its rate of absorption into the blood stream. It is common knowledge now that it remained for Hagedorn and his co-workers at Copenhagen to combine insulin with protamine from the sperm of American rainbow trout and thereby markedly prolong and attenuate its effect. The product thus formed has been variously called protamine insulinate, insulin protaminate, protamine insulin, protamine insulin compound and, more recent-

*Read before the Association in annual session, Birmingham, April 20, 1937.

ly, protamine zinc insulin.

Since the report of Hagedorn and associates, and that of Root et al verifying Hagedorn's results,[1] the American literature has been flooded with reports of the effectiveness of the new compound and it has been hailed on all sides as a major advance in the treatment of diabetes and the period of diabetic management since its inception has been called by Joslin the "Hagedorn Era," in honor of its discoverer.

Protamine insulin is a cloudy liquid with the active principle in suspension and not in solution. The product now in use is an aqueous suspension containing insulin, zinc and an excess of protamine that has its point of minimum solubility at pH 7.3 or at about the reaction of the blood serum. When this turbid suspension is injected hypodermically it is slowly broken down and active insulin is released over a relatively long period of time, thus producing a more even and more prolonged effect on the blood sugar. With the first or Danish protamine insulin it was necessary to have the constituents, insulin and protamine, mixed shortly before injection. Following this there was developed plain protamine insulin which was more stable and came prepared for injection. Its effect on the blood sugar was somewhat more prolonged than the Danish. It has since been found that the addition of minute amounts of the metals calcium or zinc further prolongs the absorption time of insulin and the consequent blood sugar lowering effect. Of these two, the preparation containing zinc is the more slowly acting and it is the one now in use.

As has been amply shown by numerous investigators, the injection of a single dose of old or regular insulin and the injection of a single dose of protamine insulin produce very different effects on the blood sugar. You will recognize Figure 1 as taken from the first article[1] of Root et al on this topic, which shows blood sugars of a normal individual in the fasting state after regular and after protamine insulin. Curve A shows the relatively rapid fall and the subsequent rise after 3 hours, following 8 units of regular insulin. Curve B shows the more gradual and prolonged effect following 10 units of protamine insulin. Subsequent reports have shown that the blood sugar remains depressed in the fasting individual a much longer period of time. This is shown in Figure 2, reproduced from the work of Sprague et al,[2] which shows the effect of a single large dose (50 units) of protamine insulin when food is withheld. Hypoglycemia is seen to be present for the

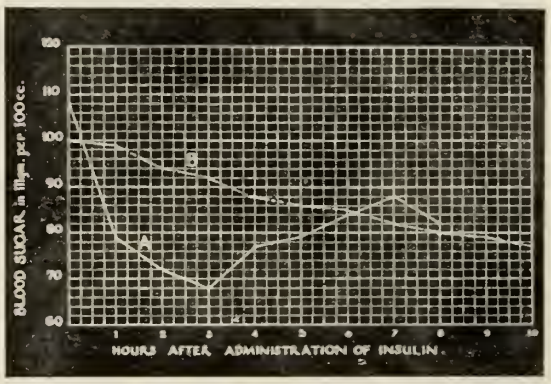



Fig. 1

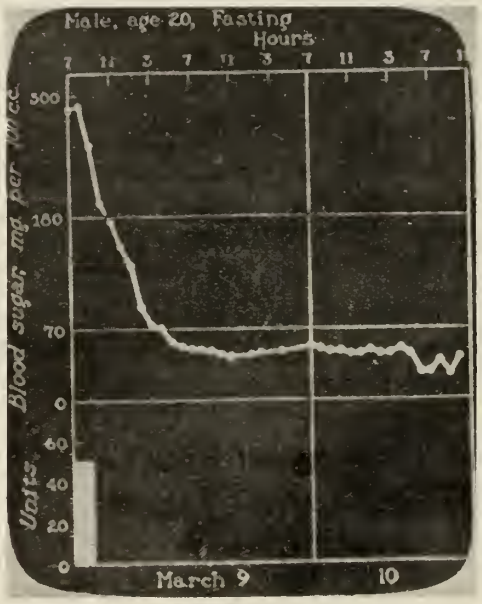



Fig. 2

greater part of the curve which extends for practically 40 hours after the protamine insulin is injected. The blood sugar drops for 10 to 12 hours and then remains fairly constant. This curve was taken after plain protamine insulin. With the zinc compound the low point would not come until after 20 to 24 hours had elapsed.

The peculiarly beneficial effects of such

1. J. A. M. A. 106: 177-180; 180-183 (Jan. 18) 1936.

2. J. A. M. A. 106: 1701-1704 (May 16) 1936.

prolonged depression of the blood sugar of diabetics will be seen upon examining the blood sugar curve of a patient with diabetes of moderate severity, while first taking regular insulin and later taking protamine alone or with regular insulin. Figure 3, from an article by Waring et al,[3] shows the

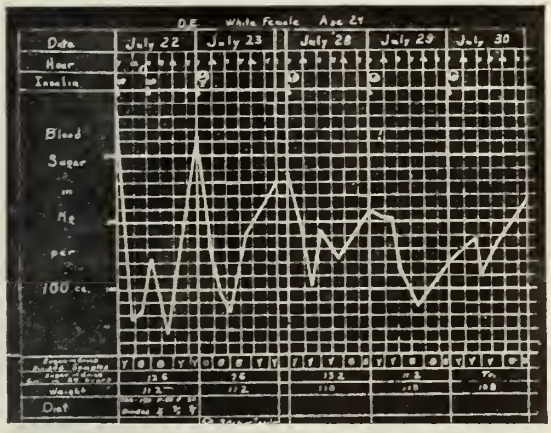



Fig. 3

striking effects of protamine insulin. The first space is a typical 24-hour curve of a rather severe diabetic taking two doses of regular insulin, 45 units before breakfast and 20 before supper. The blood sugar is seen to fluctuate between wide levels, resulting in hyperglycemia with profuse glycosuria at times, and at others hypoglycemia of rather marked degree. It is seen that the blood sugar is abnormal most of the time and that the patient starts his day with a high fasting blood sugar and its consequent impairment of carbohydrate metabolism. In contrast to this is the latter portion of the curve, when the patient is taking protamine insulin (in circles 0). The blood sugar here is most of the time between 100 and 200; it is never excessively high or low, and the patient is taking, after adjustment, only a single dose of protamine insulin a day. In other words this patient's carbohydrate metabolism is much nearer to the physiological normal of the non-diabetic, and this is accomplished at the expense of much less inconvenience to himself. Other more severe forms of the disease with even more rapid fluctuations of the blood sugar level, requiring 3 and 4 doses of regular insulin daily, and, on such a regimen, spilling large quantities of sugar at certain times of the day and, at others, with symptoms of hypoglycemia, show a more even level of the blood sugar, become aglycosuric most of the day and the symptoms of low blood sugar are seen to be relieved by the use of protamine insulin. Although the regular insulin cannot be entirely replaced in all of such patients, still the number of injections can be decreased and, what is even more important, the number of times of injections is decreased. In other words, he can take all of his insulin at one time of the day, as will be shown presently.

Such blood sugar curves are interesting and instructive in that they give graphic pictures of the state of the carbohydrate metabolism and show so clearly the usefulness of protamine insulin. However, such frequent determinations of the blood sugar of diabetic patients is not essential for adequate treatment and indeed it may be said that the vast majority of diabetic patients can be competently handled with only rare recourse to a blood sugar determination; and this applies, of course, to the use of protamine as well as regular insulin. This is not to decry the necessity of blood sugar determinations, particularly in severe forms of the disease such as the juvenile type, and in differentiating various types of glycosuria.

As to the actual management of the disease with protamine insulin, most observers agree on a diet containing carbohydrate in the neighborhood of 150 gm. daily as a minimum. As Joslin says, this is the equivalent of a slice of bread and a small orange at each meal, a small amount of cereal, and milk and cream at breakfast and average servings of 5% and 10% vegetables at the other two meals. This is not excessive restriction. A third of the carbohydrate ration is taken at each meal and these should be at longer intervals than heretofore such as 8 A. M., 1 P. M., and 7 P. M., rather than 8 A. M., 12 noon and 5 P. M. The urine is tested before each meal and before retiring, saving all of the urine voided since the last testing. Qualitative urinalyses are done and recorded according to color from CR (Complete Reduction) for brick red through the various shades of yellow and green for 4, 3, 2, and 1 plus. At Joslin's clinic this is not done; only individual specimens are tested as voided and a quantitative

3. Colorado Med. 33: 757-773 (November) 1936.

done on the 24-hour amount. Protamine insulin is given once a day only and this preferably in the morning before breakfast. More frequent injections defeat its purpose and lead to the possibility of dangerous hypoglycemic reactions because of the cumulative effect of frequent doses on the blood sugar. It will be seen that the effect of the protamine insulin taken on one morning is most accurately guaged by the urine voided before breakfast the following day. It is not necessary to take protamine on the dot. An hour's leeway each way will make no difference. Whether or not additional insulin in the form of regular insulin is required will depend upon the severity of the case, but of course if regular insulin is used it must be given as usual at a definite time, usually 15 to 30 minutes before meals. If regular insulin is necessary, it will, almost without exception, be required before breakfast, so that the two doses of insulin, regular and protamine, can be taken at the same time of day and even out of the same syringe without washing same, always of course giving the regular insulin first and the two injections at separate sites.

With the diet prescribed as above indicated and the urine to be tested as shown and insulin to be given as designated above, the object, of course, is to keep the urine free of sugar and the patient free of shock, and this with as little insulin as possible. When this is done, the patient's diabetes is controlled. Assuming that the patient takes his diet well, protamine insulin is given in increasing doses until the morning urine is clear. If the urine after breakfast and after lunch still shows sugar, slight increase in the dosage may cause this to clear. On the other hand this may cause hypoglycemic symptoms in the early morning hours, even though the urine after supper has shown considerable sugar. When this occurs it is the result of the overnight fall of the blood sugar curve, due to the action of the protamine insulin and it is the opposite of what happens when regular insulin is being used, in which case there is an overnight rise. Protamine insulin, as Joslin says, has without exception prevented this overnight rise. To circumvent these possibilities, regular insulin, usually a small dose, is given before breakfast to stop the after-breakfast glycosuria, and the carbohydrate of the evening meal may be divided, giving one half or a third of this around 9 or 10 P. M. This latter procedure takes the heavy load of a large amount of carbohydrate at one time off the patient when he is relatively poor in insulin and allows him to postpone eating a part of it until the A. M. protamine is having more effect. In fact it is often advisable to divide the breakfast and lunch, carbohydrate also, giving small mid-morning and mid-afternoon feedings, thus distributing the carbohydrate more evenly throughout the day. Thus by giving what might be called a "basic" dose of protamine insulin to render the patient sugar free with normal blood sugar in the A. M., glycosuria at any other time of the day is controlled by juggling the diet and or the addition of regular insulin.

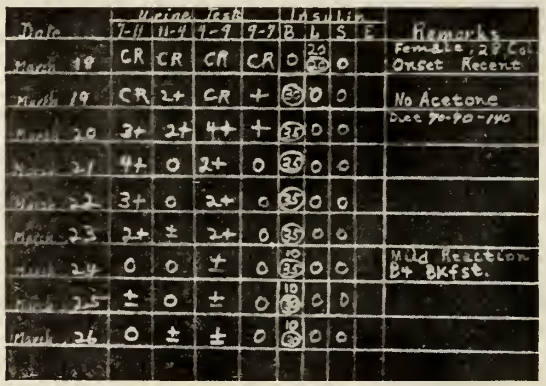



Fig. 4

Figure 4 shows the urine tests and insulin dosages of a patient with diabetes of recent onset, a young negro woman. The urine was loaded with sugar but there was no acetone. Incidently the blood sugar in this patient was 425 mg. in the capillary blood. Diet was prescribed as shown. As shown on the chart, urine is collected from 7. A. M. to 11 A. M.; from 11 A. M. to 4 P. M.; 4 P. M. to 9 P. M., and 9 P. M. to 7 A. M. Qualitative tests on these specimens are recorded in the first four columns. The next three columns indicate the insulin dosages and the time they are given, before breakfast, lunch and supper (B, L and S). The protamine doses are surrounded by circles. She was started immediately on protamine insulin 20 u. and at the same time a single dose of regular insulin (20 u.) was given. The regular insulin could have been omitted

but it seemed advisable to get her started immediately. The next morning her urine was still loaded with sugar. This is shown in the 9 to 7 column of March 18 but actually represents the urine voided on rising March 19, because it contains all urine excreted between 9 P. M. of March 18 and 7 P. M. of March 19. Accordingly, the dose of protamine was increased to 30 u. and was given before breakfast, to be given at the same time thereafter. Extra regular insulin might well have been given at the same time but for various reasons this was not done in the hope that she would clear on protamine alone. She showed considerable sugar the rest of the day after the 30 u., but the following morning there was only a one plus urine test. Accordingly, the protamine was increased by only 5 units (35 u. on March 20). Sugar continued to spill throughout the day, due, of course, to the carbohydrate of her meals, but the following morning this was again only one plus. This is shown on the March 20 line. Although the A. M. urine was not quite clear March 21, the dose was not changed, since the amount of sugar was small. Actually, the A. M. urine cleared the next day, although for several days she continued to spill sugar after breakfast and after supper as is shown in the 1st and 3rd columns of March 21, March 22, and March 23. Accordingly, on March 24 she was given 10 u. of regular insulin before breakfast, and on this the before-noon glycosuria cleared. At the same time the carbohydrate of the evening meal was divided and this adequately controlled the evening glycosuria. The urine on rising in the morning having been clear for several days, the protamine was decreased, as shown, to 30 u. and she remained controlled on this dosage, protamine 30 u. and regular insulin 10 u. a day. (The notation, "mild reaction before breakfast" is a mistake and should read "evening carbohydrate divided.")

Figure 5 is of a middle aged patient with what Dr. Priscilla White calls the "burned-out" type of diabetes, but in whom it was still quite active. He illustrates the shift of a patient to protamine insulin, already partially controlled on regular insulin. When this shift is made, a single dose of protamine insulin is given, in amount about two-thirds of the total 24-hour dose of regular insulin formerly used, or slightly less than this amount. This is supplemented by a smaller dose of regular insulin. Then gradually the protamine is increased and the regular insulin decreased.

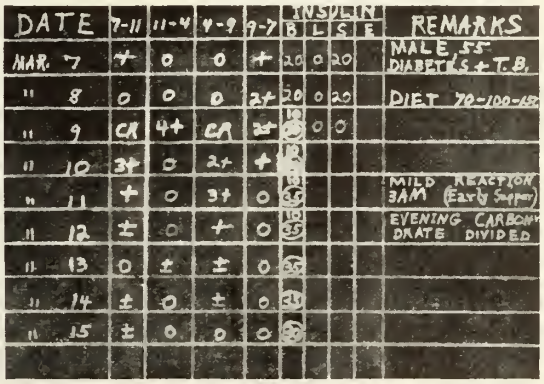



Fig. 5

This patient had been on 20 u. of regular insulin twice a day. He was given, therefore, 30 u. of protamine plus 10 u. of regular. Characteristically, as when the shift is made, profuse glycosuria developed and though decreasing the following day on the same dose, it did not entirely clear and the A. M. urine of March 11 (see 9 to 7 column of March 10 line) still contained a small amount of sugar. Consequently the protamine was increased to 35 u. the morning of March 11 and the following morning the urine was clear. The mild early A. M. reaction noted after this increase was thought to be due more to the fact that he had been eating supper around 5 P. M. than to too much insulin. This is shown also by the fact that he continued to spill sugar following supper (4 to 9 column). Accordingly, the dose was not changed, but on March 12 supper was eaten later, between 6 and 7 P. M. and part of the supper carbohydrate was taken at 9 P. M. On this he straightened out fairly well, and had no reaction, the evening glycosuria was diminished to one plus, and the urine after breakfast showed only the slightest trace. Therefore, on the next day, March 13, the regular insulin was omitted. Since there were only the slightest traces of sugar at times on 35 u. of protamine for 2 days, this dose was decreased to 30 u. Since then the dose has varied between 30 and 35 units daily.

Another patient, perfectly well regulated on u 20 of regular insulin once a day, was

arbitrarily shifted to 10 u. of protamine. He remained sugar free and reported what has been noted by most patients who have changed from regular to protamine insulin; namely, a distinct improvement in his general feeling of well being.

Other striking beneficial effects of protamine insulin reported in the literature are the rapid shrinking in size of the large fatty livers often seen in young diabetics and the relief of so-called diabetic neuritis. It is hoped that this new preparation will do much to prevent the late vascular complications of diabetes, although years must elapse before this can be known. Protamine insulin is too slowly acting to be used in severe acidosis and coma so that regular insulin must be used as heretofore in these conditions.

Insulin reactions have not been abolished by the use of protamine insulin but their frequency has been greatly reduced. When protamine is given in the above manner, most of the reactions occur in the early morning hours, around 5 A. M. Reactions following protamine differ from those after regular insulin in several ways. Their striking features are insidious onset and refractoriness to treatment. Presumably because the blood sugar falls so gradually, the symptoms are very slow to develop and the blood sugar at times drops to remarkably low levels before the patient is aware of any kind of discomfort. Children have repeatedly been found with a blood sugar below 25 mg. who were up and about, playing. I was told recently by Dr. Priscilla White, a member of Dr. Joslin's group, that one child was found to have a blood sugar of zero (no demonstrable glucose in the blood) who was not particularly uncomfortable, and was certainly nowhere near to convulsions or unconsciousness. Nausea and vomiting are frequent symptoms of protamine insulin reaction. The condition may therefore be confused with hyperglycemia and acidosis. The patient often fails to sweat in a reaction, again leading to confusion with acidosis. Headache often occurs as an early symptom. I have seen one patient with hemiplegia induced by such reactions and relieved when the blood sugar was raised to normal. A rarer manifestation of shock is the syndrome of the acute surgical abdomen with pain, rigidity, fever and leucocytosis, relieved by intravenous glucose. Hunger is often absent. In the treatment of protamine insulin reactions it is necessary to give carbohydrate repeatedly to prevent recurrence of the reaction. Hence, if intravenous glucose is given, it must be repeated later or additional carbohydrate taken by mouth. For this reason it is best to give carbohydrate which is slowly absorbed, such as crackers and milk, rather than fruit juice which is quickly exhausted. It is also characteristic of protamine insulin reactions for the symptoms to persist for some time even after the blood sugar is elevated to normal. This is particularly true in the case of nausea and vomiting.

It must be admitted that, although the above remarks apply to the vast majority of diabetics, there are cases that are still difficult to control, even with protamine insulin and that no routine will apply to 100% of the cases.

To summarize: Protamine insulin maintains the blood sugar of most diabetics at a more even level, with fewer injections, less insulin and a more liberal carbohydrate allowance. The frequency of insulin shock is greatly reduced, the patient's feeling of well being is enhanced and other less frequent salutary effects are produced. Protamine insulin has come to stay.

## MUCOCELE OF THE APPENDIX*

### REPORT OF TWO CASES

#### ONE CAUSING INTUSSUSCEPTION; THE OTHER PSEUDOMYXOMA OF THE PERITONEUM

By
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Mucocele of the appendix is of interest on account of its comparative rarity, its difficulty of diagnosis, and certain complications, especially pseudomyxoma of the peritoneum. We find in the literature various terms used to designate this condition: retention cyst, hydrops, mucocele, colloid cyst, pseudomucous cyst and cystic disease of the appendix.

The condition was first described by Virchow in 1863. A very few cases were reported following this in the nineteenth cen-

*Read before the Association in annual session, Birmingham, April 20, 1937.

tury. Since 1900 the number of cases reported has gradually increased. In 1916 Dodge was able to collect 142 cases from the literature. Bell states that from 1928 to 1935 fifty-five cases were reported on the Pacific coast. In 1932 Mayo and Fauster reviewed the subject at the Mayo Clinic, and found that there were seventy-six pathologically proved cases of mucocele in 31,200 appendectomies.

The opinion of most authors who have discussed the etiology is that two conditions are essential for development: 1. The gradual obstruction of some portion of the appendiceal lumen. 2. Sterility of the contents distal to the obstruction. Lately a few have indicated that they do not consider these conditions necessary. Several cases have been reported in which a complete obstruction did not exist and a description of a few cases associated with infection can be found in the literature.

Early attempts to produce this condition in experimental animals were unsuccessful. In an article published by Antoine in 1935 it is stated that in a number of instances this has been done successfully by ligating the appendix.

The gradual obstruction of the appendiceal lumen may result from inflammatory changes, normal involutionary changes or new growths. It is believed that the obstruction in the majority of cases is of inflammatory origin. Phemister avows a direct relation between the development of mucocele and the normal involution of the appendix. He states that most cases are found between the ages of thirty-five and fifty years, during the period in which retrogression with obliteration of the appendiceal lumen takes place.

Under normal conditions the secretion of the mucosa of the appendix is the same as that of the cecum, but degeneration incident to the changes evoked in the obstructed portion and the mucosal atrophy resulting from retention naturally alter the secretion and the final contribution of the cell is pseudomucin.

Mucoceles of various sizes and shapes are described. Specimens are reported which are from 3 to 30 cm. in length and up to 21 cm. in diameter. Cleland and Sleeman report a specimen the size of a football. The shape is described usually as sausage, banana, pear, comma, or globular.

The contents vary from a fairly thin watery material to a thick tenacious jelly-like substance. Probably the contents are watery or mucus-like in the early stage of the disease and become more gelatinous as the condition progresses.

Diverticula protruding from the wall of mucoceles are occasionally described. Dodge found them described in twelve of the one hundred forty-two cases he reviewed. Ginsburg's specimen showed three diverticula. These diverticula are likely due to pressure on the attenuated weakened muscle wall.

A protrusion of the mucocele into the lumen of the cecum, pushing ahead of it cecal mucosa, has been described by Weaver. This condition existed in one of my cases reported later in this paper.

The description of the microscopic findings in the walls of mucoceles varies widely. In most cases a thinning of the mucosa has been found and in some cases areas of ulceration are described. The muscle layer may be thickened, showing evidence of hypertrophy, or very thin, or it may be replaced almost entirely by fibrous tissue. It has been found that hypertrophy of the muscle coat is usually seen in small mucoceles, while more or less atrophy is the rule in larger ones.

The symptoms of this condition are indefinite and rather variable. About 50% of the cases which have come to surgery have given a history of pain, discomfort or other symptoms referable to the lower right abdominal quadrant. On account of the rarity of the condition, inconstancy of symptoms and often a lack of symptoms. a correct preoperative diagnosis is almost unknown. In the 142 cases reviewed by Dodge a correct preoperative diagnosis was made in only one case. I have not been able to find reported another case in which the diagnosis was correctly made bofore operation or autopsy.

Mucocele of the appendix has been mistaken for hydrops of the gallbladder, floating kidney, pedunculated fibromyoma of the uterus, ovarian cysts and intestinal tumor.

In a large per cent of cases the complications arising from or associated with mucocele of the appendix bring the patient to the physician.

Infection is not an uncommon complication. In these cases an operation is usually performed for acute appendicitis and on pathological examination evidence of mucocele is found, in addition to the acute inflammatory changes.

Carcinoma of the appendix associated with mucocele has been reported several times. Dodge was able to find nine reported cases up to the year 1916. I have been able to find only four other reported cases.

Intestinal obstruction has been reported as a complication a few times. The obstruction may be caused by either a protrusion of the mucocele into the lumen of the cecum so far that the ileocecal valve is obstructed, or by intussusception. While intussusception is given as a complication of mucocele by a number of authors I have been able to find only two reported cases in which a true intussusception existed.

REPORT OF CASE

A white male, thirty-two years of age, was first seen by me October 10, 1936 on account of intermittent abdominal pain, nausea, and vomiting. This condition had existed for five days but not continuously. He had been able to be up and about most of the time, and he was having normal bowel evacuations.

Physical examination was entirely negative except moderate discomfort on pressure in the lower right abdominal quadrant, the maximum tenderness being at McBurney's point. No abdominal mass was detected. All laboratory findings including blood counts were within normal limits.

An enema was given with good results and complete relief of pain. Following this there was no pain or discomfort during the night and the patient felt entirely well the following morning. In a very short time after eating breakfast extremely severe intermittent abdominal pain with nausea and vomiting began and persisted till operation.

With a preoperative diagnosis of acute intestinal obstruction the abdomen was opened and an intussusception was found which involved the ileum, appendix and cecum. This was reduced in the usual manner. The appendix was found to be quite large and there was a globular mass in the cecum about 2 cm. in diameter just above the appendiceal attachment. The lower end of the cecum including the appendix was removed by aseptic technique in such way as to preserve the normal opening of the ileum into the cecum.

Pathological examination showed the appendix to be banana shaped. It was 12 cm. in length and 2 cm. in diameter. The mucosa of the appendix bulged into the cecum forming a mass 1½ cm. in diameter. The opening between the lumen of the cecum and the appendix was entirely closed. The appendix was filled with a yellowish gelatinous material. Microscopic examination showed a rather thin but well formed mucosa. The muscle coat was greatly thickened. There was an increase in plasma and round cells throughout.

The final diagnosis was mucocele of the appendix, chronic appendicitis and intussusception. The patient made an uneventful recovery.

In my opinion the most interesting complication of mucocele of the appendix is pseudomyxoma of the peritoneum. Werth is given credit for first describing the condition and coining the term, pseudomyxoma of the peritoneum, in the year 1884. His case was associated with cyst-adenoma of the ovary. It was not till the year 1901 that this condition resulting from mucocele of the appendix was described. In 1916 Dodge was able to find only fourteen reported cases up to that time. I have been able to find reported forty-five cases since 1916 with a total of only fourteen occurring in the male.

It is the opinion of most writers on this subject that it may result from a ruptured pseudomucinous cyst of the ovary, mucocele of the appendix, or Meckel's diverticulum. In the recent literature we find that a few authors question the ovarian origin of pseudomyxoma of the peritoneum and advance the hypothesis that all cases are of intestinal origin.

It is thought that with the rupture of a mucocele of the appendix epithelial cells from the appendiceal mucosa are extruded into the peritoneal cavity with the gelatinous contents of the appendix, and that they attach themselves to the peritoneum, proliferate, and continue the production of pseudomucinous material. A peritoneal inflammatory reaction results from the presence of the gelatinous material and a large amount of fibrin may be thrown out which later becomes organized into strands of fibrous tissue that may form a network enmeshing the gelatinous material. As a result of the accumulations of this material the abdomen may become distended to tremendous proportions.

REPORT OF CASE

This patient was a man fifty-six years of age. He came to me on September 17, 1934 complaining of great abdominal distention with some discomfort and weakness. He had been in good health till two years before with the exception of a right inguinal hernia. The present illness began with pain and tenderness in the lower right abdominal quadrant, which he attributed to an inguinal hernia.

This persisted for some time and he soon began to notice abdominal enlargement. The abdomen gradually increased in size and for three weeks before coming to me he was confined to bed on account of weakness and the size and weight of his abdomen.

Examination revealed a very thin man who appeared chronically ill. The very large abdomen was especially noticeable. Examination of the abdomen showed all of the signs of a very marked ascites. Other physical and all laboratory findings were not remarkable.

The abdomen was tapped with a large cannula and twelve liters of a very thick gelatinous fluid were removed by suction.

Two days later the abdomen was opened with a preoperative diagnosis of pseudomyxoma of the peritoneum of appendiceal origin, or colloid carcinoma. A large cyst filled the greater part of the abdominal cavity. It contained seven liters of gelatinous fluid in addition to the twelve liters which had been withdrawn two days previously. The wall of this sac was very thick, and protruding from its inner surface at many places were clusters of small cysts filled with a very thick, tenacious material. On account of the poor condition of the patient and the dense adhesions between the large sac and other abdominal structures further exploration was not carried out.

He left the hospital on the eighteenth postoperative day and was referred for deep x-ray therapy.

He did very well for about two years and again noticed that his abdomen was enlarging.

On November 24, 1936 his abdomen was reopened. An irregular sac 15 cm. in diameter was found in the lower right abdomen and extended into the pelvis. It was filled with the same type of gelatinous material found at the first operation. This sac was continuous with the appendix, the lumen of which was practically obliterated. A much larger sac filled the left lower and a great part of the upper abdomen. Many small pockets of this gelatinous material surrounded by thin delicate membrane were found throughout the abdominal cavity.

The appendix together with the sac to which it was attached was removed. A large quantity of pseudomucinous material was removed from the free abdominal cavity. The large left and upper abdominal sac was opened and its contents removed. This large sac could not be removed on account of its size and dense attachments, so the opening in it was attached to the abdominal incision.

The patient did very well following this operation for a period of about three weeks. He then developed a septic temperature and other symptoms of intra-abdominal infection and died after a few days.

Autopsy showed the peritoneal cavity about as described above. There was moderate necrosis of the wall of the sac which had been attached to the abdominal incision at the last operation. There was a moderate amount of seropurulent material in the pelvis. All abdominal organs were thoroughly examined. The gastro-intestinal tract from the esophagus to the anus was removed, opened and examined. No evidence of carcinoma or any disease except that given above was found.

Chemical examination of the gelatinous material removed in this case gave the reaction for pseudomucin.

Microscopic sections taken from certain parts of the gelatinous material showed at places a delicate network of fibrous tissue and an occasional patch of tall columnar epithelium.

The final diagnosis in this case was pseudomyxoma of the peritoneum of appendiceal origin.

The prognosis of pseudomyxoma of the peritoneum is bad. The majority of cases ultimately prove fatal. Removal of the appendix may check the disease or result in recovery. Most cases die as a result of sepsis, embolism or intestinal obstruction.

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**The Neurotic**—The neurotic is naturally more apt to fall a victim to real pathologic processes than is the individual who has a normal nervous system. As soon as a person is found to be somewhat neurotic, just so soon the responsibility of his physician becomes doubled. If the physician puts his patient in the list of his chronic neurotics he should watch the case more painstakingly and be ever on the alert to detect some real pathological process that may have become evident since the last examination. If a man be qualified to make the examination that is indicated one or two such examinations should satisfy him as to whether or not there is a real basis for the complaint.—*Turlington, South. M. J., July* '37.

# THE JOURNAL
OF THE
**Medical Association of the State of Alabama**

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

July 1937


## THE DEATH OF A DOCTOR

When death claimed Dr. C. Hilton Rice on May 27, the following editorial appeared in *The Montgomery Advertiser.* It is reproduced in full for the physicians of Alabama.

PHYSICIAN, PHILOSOPHER, DREAMER

Under the wide and starry sky,
Dig the grave and let me lie;
Glad did I live and gladly die,
And laid me down with a will.

This be the verse you gave for me,
Here he lies where he longed to be;
Home is the sailor, home from sea,
And the hunter home from the hill.

—Stevenson's "Requiem."

Not all great men are generally known to be great before they are cut down. In some instances only a narrowed circle of knowledgeable friends are aware of the leaping fires that blaze within the house of a spirit that is outwardly familiar and simple, and so unsuspected of being host and temple to numerous splendors.

For the great sometimes die before their work is finished and so before the world has had its chance to fix their place in human memory. Naturally it is not easy to appraise the scope and significance of a man who has gone to sleep before the work of his day is done, but it is pardonable, we feel sure, for those who were privy to the affairs of his spirit to risk their reputations as responsible observers of human phenomena on the judgment that had Clark Hilton Rice lived for five years more he would have been accepted as among the great of his time. At least this writer ventures the statement as his own considered opinion.

For 24 years we in Montgomery had generally known Dr. Rice as the wise, prudent and sympathetic physician, the master of children's diseases. In more recent years we had known him as the amazing practical psychologist in the treatment of certain nervous disorders, not only of children, but of adults.

We who were close to him knew that the admiration which as a psychotherapist he had commanded among his professional colleagues encouraged him to hope that in due time he might abandon pediatrics, that is to say, work among babies and children, and devote his professional hours and skill to reconditioning many types of disordered nervous systems. We knew that he was primarily concerned with the mystery, the majesty and the beauty of the human mind. He was tremendously impressed with the grief, the pain and the misery that the mind is responsible for. He realized that his personality and his intuition lent themselves readily to this type of practice, a gift denied to many physicians.

We knew that there was no aspect of the mind that he did not think deserved the best thought and attention of all physicians, all students, all philosophers, and we knew that for the last year he was attached to the staff of a great Southern university whose department of psychology desired him to conduct systematic researches into the subject of extra-sensory perception, otherwise clairvoyance and telepathy. Dr. Rice was no mystic, however spiritual he may have been, but was essentially scientific in preference, will and training. He was partial to the provable and the reasonable inference. He was convinced by his own experiments that image transference was a demonstrable fact and at his death was patiently engaged in writing the final report on his studies. In this report he had advanced a theory that image transference was a purely physical phenomenon, and so authentic and dependable.

This study, however, was purely incidental with him. However zealously he may have labored here, the subject was not of primary concern to him. When The Call came he was hurrying through with his report and looking forward to the hour when he might return to the study and exposition of a greater theory that had gripped him for a quarter of a century.

In his day Dr. Rice had made himself familiar with all branches of science and philosophy and in the end evolved a theory which he believed would reconcile the more rational priests and biologists and at last bring them together as brothers and collaborators. The Mystery of the Universe fascinated him, not as a mystic, but as an inquiring scientist and an ardent philosopher; and so two decades ago he began to reinterpret the authentic data of the scientists and the generalizations of the philosophers in the light of his own concept.

Year after year he examined the literature of the scientists and philosophers and from time to time revised and elaborated his thesis, but always from his own point of view, for always Rice was original, independent, defiant, affirming vehemently to his friends that the orthodox minister and the orthodox biologist were the natural enemies of his idea, but that in the end both would be discredited and he would be vindicated. He was, then, scornful alike of atheists and fundamentalists.

Now the foregoing passage would not be permissible but for the fact that some years ago Dr. Rice published an outline of his Theory of the Universe in a famous London quarterly and at other times has lectured before selected groups. Actually at his death he was laboring passionately to turn his original thesis into a book-length manuscript. Before his death weighty men in science and philosophy had begun to beat a path to his door in Montgomery, for they had heard fabulous reports of this lonely thinker who treated sick babies with one lobe of his brain and speculated upon the character and destiny of the human species with the other. Occasionally he took time out to write a short paper for a scientific periodical. At other times he took time out to write short stories, full of pathos and humor, for popular magazines. Regularly he attended the meetings of the Unity Club, a debating society devoted to the study of ideas, regularly he attended the meetings of the board of the Montgomery Lecture Course to see that brainy, inspirational lecturers were brought to Montgomery to stimulate those of our people who had faith in the human mind.

At other times Dr. Rice followed sports of every kind, enjoyed the banter of his friends, among whom he was regarded as a wit par excellence, and at other times enjoyed the affection which his family showered upon him, while he in turn showered affection upon his family.

Dr. Rice, we dare say, was one of the boldest and most significant thinkers of his time. He was a many-sided man, a marvelously gifted man. He was diffident and shy in personal contacts, but spirited and passionate under fire. He was a stout and beautiful character. He was gracious, gentle. compassionate, temperate, modest—but a gallant foeman of every pessimist, an ardent believer in mankind, and so almost the last man in Montgomery who should have died Thursday afternoon.

## FEES FOR VACCINE ADMINISTRATION RESUMED

Due to the fact that the revenues of the state have been increased and the appropriations to the health department better stabilized, it will be possible, beginning June 1st, 1937, to resume payment of fees to physicians who administer rabies vaccine to indigents. It will be remembered that it was imperative to discontinue these payments approximately a year ago, when the Pasteur appropriation was reduced from $30,000.00 to $9,500.00. As formerly, the fee will be $5.00 for each complete treatment (14 doses) of rabies vaccine administered to patients who are indigent.

It should be stressed again that no fees can be remitted unless strict attention is paid to the regulations governing their disbursement. The questionnaire which is wrapped around each treatment must be completely filled out and returned to the State Department of Health. This is important in that it bears the serial number of the treatment and is essential for the records of the vaccine division. The affidavits which are then sent from the department must be executed fully and returned. The question of indigence is determined from these affidavits by the State Comptroller's office; hence their importance is apparent. No warrants can be issued unless all the steps in this procedure are followed.

## THE ATLANTIC CITY MEETING OF THE AMERICAN MEDICAL ASSOCIATION

The 88th annual session (the 90th year) of the American Medical Association, held in Atlantic City June 7-11, 1937, was, from the standpoint of attendance, the largest in its history—there being nearly 10,000 physicians registered. From the standpoint also of the number and excellence of the scientific programs and exhibits of the various sections, as well as the commercial exhibits, these, too, surpassed all previous meetings. The Secretary's report to the House of Delegates also revealed the largest membership in the Association's life—now more than 106,000.

Because of the many resolutions introduced into the House of Delegates bearing on important scientific, governmental, economic and sociologic matters of deep concern to the medical profession, the time of the members of the House was so taken up as to allow but small opportunity for browsing within the scientific sections. Committee hearings were prolonged far into the night, after which reports had to be written. Of the several executive sessions held, probably the most interesting was that at which Senator J. Hamilton Lewis, of Illinois, a staunch friend of organised medicine and chairman of a subcommitte, now giving consideration to the medical aspects of the Social Security Act, appeared, upon his own request, to seek counsel and advice from the legislative body of the American Medical Association. Senator Lewis brought greetings from the President in which the President expressed the hope that organised medicine in this country, speaking through the American Medical Association, would find a way to co-operate with him in working out methods jointly for the rendering of service to the helpless and the afflicted within scopes

which the government might undertake. The gist of Senator Lewis' rather confidential discussion regarding governmental trends for the distribution of medical care left discomforting forebodings of a likely early commandeering of all licensed physicians for certain services, with the Federal Government assuming financial responsibility. In substance, Senator Lewis expressed the view that in the formulation of any national policies dealing with medical practice, the medical profession should have a voice, and representatives selected by and from the organised profession some authority in its administration; this being for the clear purpose of circumventing complete lay domination and of minimising the dangers inherent in any political setup. With these views organised medicine is in entire accord; for it has been from these sources that it has felt it had most to fear. Following this address, the Board of Trustees of the Association conferred with Senator Lewis; what transpired or what, if any, accord was reached was not borne back to the House of Delegates. However, this body, after receiving Senator Lewis and after giving consideration to certain resolutions presented to it by the New York delegation and approved by the New York State Medical Association, dealing with certain types of medical service which provided for governmental financial participation, did adopt resolutions expressing a willingness to co-operate with the government in working out plans for the care of the indigent sick when so requested by the government. Throughout these discussions bearing on an altered medical service to meet the needs of a rapidly changing picture in our social structure, one seemed to sense amongst the delegates a hopeful optimism and determination for scientific medicine, once given the opportunity, to prove no laggard in carrying its full part of the burden.

Another topic for many years perennially bobbing up in the House of Delegates, and as consistently side-stepped when having bobbed up, was the question of birth control and the responsibilities resting upon the medical profession in this socio-economic question. While the House did not go on record as giving approval to indiscriminate birth control practices, as one might have concluded from the newspaper reports, it did unanimously approve a dignified report submitted by the Committee on Contraception. This places on the various councils of the American Medical Association the responsibilty for the examination of products used in contraception; it recognises the need for teaching the scientific aspects of fertility and sterility; the need for doctors informing themselves as to their legal rights and responsibilities in these matters and that all such practice be in regularly licensed clinics and under medical control.

Most unbiased, progressive physicians are likely to welcome this spark of leadership emanating from scientific medicine which already is too long over due.

Another significant action taken by the House was the creation of the machinery within the Association for the awarding, each year, to one physician a distinguished service medal with citation, such award to be based upon evidence that such physician has rendered notable service for the advancement of the science and art of medicine.

Another attraction of this meeting was the showing, for the first time, of the new "talkie" motion picture film sponsored and financed jointly by the American Medical Association and the United States Public Health Service. This film tells its story simply, forcefully and effectually, and it is planned to make it generally available to medical societies and medical groups throughout the country in order to further promote, on a sound professional basis, a nation-wide program of control of the venereal diseases.

When the time came for the selection of officers for the ensuing year, a rather unusual and exceptional happening occurred; there was no semblance of "politics" or of competition for any of the offices and each candidate, as his name was placed in nomination, received the honour by acclamation. This resulted in Dr. Irvin Abell, of Louisville, Kentucky, being chosen as President-Elect and Dr. Junius B. Harris of California as Vice-President, for the ensuing year. The other general officers, now serving the Association and whose terms had expired, were reelected to succeed themselves.

The next annual meeting will be held in San Francisco, California.

# TRANSACTIONS OF THE ASSOCIATION

## 1937 SESSION

PROCEEDINGS OF THE ANNUAL MEETING OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA, HELD AT BIRMINGHAM, APRIL 20-22, 1937

First Day, Tuesday, April 20

The Medical Association of the State of Alabama convened in the ballroom of the Tutwiler Hotel and was called to order at 10:00 A. M. by the President, Dr. Lloyd Noland of Fairfield.

Invocation was offered by the Reverend C. C. J. Carpenter, of the Church of the Advent, Birmingham.

Addresses of welcome were delivered by Hon. W. J. Wynn, Attorney for the City of Birmingham; and Dr. S. L. Ledbetter, Jr., President of the Jefferson County Medical Society, host to the Association.

Dr. A. B. Coxwell, Monroeville, Senior Vice-President, presented the President.

Dr. Coxwell: *Members of the Association*—The career and character of the one it is my privilege to present to you have been most interesting and instructive; and have served to round out an embellishment and equipment for his calling which include natural inclination, inherent talent, and conscientious and comprehensive training.

Throughout his career he has had unusual opportunities for perfecting himself in the vocation to which he has devoted his life, and in which he has made himself eminent.

Dr. Noland was graduated from the University of Maryland in 1903, and served as interne and resident physician in the Maryland General Hospital until 1904. In that year he accepted an appointment to the Canal Zone as Assistant Surgeon in the employ of the United States Government, and served at the Ancon Hospital during 1904 and 1905.

He was promoted to Executive Officer in 1906, serving as such on the staff of General William Crawford Gorgas for about one year. In 1907 he was elevated to the position of Chief Surgeon at the Atlantic Base Hospital, where he remained until 1913. In that year he resigned to accept the post of Chief Surgeon and Superintendent of the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company at Fairfield, Alabama—a position he has retained until the present.

Dr. Noland's executive ability and professional talent have served to make the Employees' Hospital complete in every particular, and it is now one of the model and modern institutions of the South.

His professional connections are numerous, including Fellowship in the American Medical Association, the American College of Surgeons, and the Southern Surgical Association.

My friends, it is my high privilege to present the President of The Medical Association of the State of Alabama, Dr. Lloyd Noland.

### *The President's Message*

*Fellow Members of The Medical Association of the State of Alabama:*

A year ago, you conferred on me a very great honor by electing me to the presidency of this Association now convened for its seventieth consecutive annual session, an honor very deeply appreciated, I assure you.

According to long established custom it is the duty of the President of this Association to present a message, which I shall attempt to do as briefly as possible.

For more than five years the economic status of the physician has been a burning subject in every County and State Society of the United States: first, because of the tremendous decrease in the earnings of practically all physicians; and second, because of a most distinct threat of regimentation of medicine by The Government.

Multitudinous plans have been proposed, discussed, and, in some instances, given trial. In most cases, however, they have been rejected.

As we all know, the slow but inevitable emergence of this great country of ours from the slough of depression has already brought greatly increased incomes to a vast majority of practising physicians, but the possibility of Government interference with our methods of practise still threatens us. For some hundreds of years science and education in this country have steadily advanced, retarded only temporarily if at all. But now we are face to face with the first real threat of this advance—the domination of freedom of thought and action by political dictatorship.

The real spirit of Democracy has made us what we are, and only when Democracy flourishes unchallenged can real freedom of thought and action be ours.

Political dictatorship hangs like a great shadow over men's minds and hearts in that it destroys initiative and makes a slave of the individual to a self-aggrandizing power called the "State." Compromise has been urged in various sections of the United States as a remedy for the real threat of so-called "State Medicine," but no compromise should be necessary if we remain true to the ethics to which we have pledged allegiance.

We should endeavor in every way to steer clear of the trend of thought of today—that we can get something for nothing, that life can be made easier than Nature intended.

Let us purge our honored profession of those unworthy of the trust and full confidence so long accorded us by an appreciative and grateful public. Let us perpetuate our good standing by an increasingly careful scrutiny of applicants at our medical schools so that, by arranging an already crowded course, men are not taught the fun-

damentals of medicine, but are trained to remain constant students for the remainder of their professional lives.

Let us in every way avoid feelings of self-satisfaction and smugness, cultivating the close friendship and trust of our patients by conscientious explanations, honesty of expression, and above all, by sublimating financial consideration to the individual care of every patient.

Let us practise constantly absolute honesty of thought and action, recognize our mistakes and profit by them always, never relaxing in our search for greater knowledge for ourselves, our colleagues, and the public.

If we practise these fundamentals of a professional Golden Rule, if we maintain a united phalanx ready at all times to fight any political move toward limitation of our ancient freedom of action and thought, and, above all, if we can always be prepared to say that no person seeking medical care is denied it, then, and only then, may we be certain to escape the sad fate that has overtaken our professional brethren in the countries now under dictatorship.

Probably each and every one of my predecessors in this high office has emphasized the blessing that we of Alabama enjoy in our splendid organization. No other State can approach us in independence of action in our own affairs and in our control of public health, and this independence is reflected in the universal appreciation of our splendid State Health Department.

The accomplishments of this department, in spite of tremendously decreased income through the depression, should be a matter of pride to every member of this Association.

There is every reason to feel that largely increased financial support will soon be forthcoming, and that before long we shall have available sufficient funds to carry this department on in a way more efficient than ever.

No formal recommendations are offered. I can only venture to urge that every member of this Association give his wholehearted and earnest support to the upbuilding of our public health system, and that every County Medical Society make a united effort to bring into its membership every ethical practitioner in its boundaries.

In closing I wish to acknowledge again my deep appreciation for the honor you have given me.

## REPORTS OF OFFICERS AND COMMITTEES

The reports of officers and committees were received, each referred in its turn, without discussion, to the Board of Censors. The reports follow:

### *Report of Vice-President Coxwell*

Southwestern Division

I beg to make the following report as Vice-President of the Southwestern Division:

There has been a marked increase of activity in this district during the year. We have had two district meetings.

The first of these meetings was held at Monroeville, Alabama, on July 30, 1936. The Monroe County Medical Society acted as host on this occasion. The meeting was called to order at 2:00 P. M. at the Monroe Theatre. There were some one hundred members and visitors present. The program was as follows:

Call to Order—Dr. E. R. Cannon, Monroe County Medical Society.
Invocation—Rev. F. G. Hastings, Monroeville, Ala.
The Diagnosis and Treatment of Fibroid Tumors, with a Partial Statistical Review of Some of the Author's Cases—Dr. J. S. Turberville, Century, Fla.
The Effect of Diet on Blood Sugar—Dr. G. O. Segrest, Mobile, Ala.
Functional Diseases which Simulate Surgical Conditions—Dr. J. M. Donald, Birmingham, Ala.
Diseases of the Thyroid—Dr. E. B. Frazer, Mobile, Ala.
Surgery of the Sympathetic Nervous System—Dr. Chalmers Moore, Birmingham, Ala.
Intussusception in Children—Dr. S. O. Moseley, Selma, Ala.
Toxemia of Pregnancy—Dr. W. W. Harper, Selma, Ala.

Following the scientific discussions, the meeting adjourned to the Legion Club House where dinner was served. A dance followed the dinner.

The second meeting was held at Demopolis, Ala., on January 27, 1937. The meeting was called to order at 2:00 P. M. at the Elks Club. The Marengo County Medical Society was host on the occasion. There were approximately eighty members and visitors present. The program was as follows:

Call to Order—Dr. Alvin B. Coxwell, Monroeville, Ala.
Invocation—Rev. C. Walker Sessions, Demopolis, Ala.
Welcome Address—E. T. Norman, M. D., Linden, Ala.
Response—J. G. Bedsole, M. D., Jackson, Ala.
Sterility Study with Tubal Insufflation Apparatus (with lantern slides)—Dr. Gilbert Douglas, Birmingham, Ala.
The Question of the Prostate (Moving pictures showing sections of the prostate in detail)—Dr. J. U. Reaves, Mobile, Ala.
Bromoderma—Dr. Toulmin Gaines, Mobile, Ala.
Eclampsia—Dr. W. W. Harper, Selma, Ala.
Adjournment for banquet held at Demopolis Inn 7:00 P. M.

The scientific and entertainment programs of these meetings were enjoyed by all present.

At a meeting of the Monroe County Medical Society last October there was a resolution unanimously adopted that the Southwestern Division each year hold one meeting at Monroeville with this Society as host.

Three of the counties in the district are very active, namely; Mobile, Dallas and Monroe. The others have had one or two meetings during the year, and are more or less inactive.

## *Report of Vice-President Hayes*

Southeastern Division

During the past year the Southeastern Division held only one assembly. On June 25th, 1936, this meeting was held at Wetumpka, Ala., with the Elmore County Medical Society as host. This was a worthwhile gathering and quite well attended. At the noon hour the society provided a bountiful luncheon at the club house on Lake Jordan, which was much enjoyed by those present. On the whole, quite satisfactory work has been done during the past year by the various County Medical Societies constituting the Southeastern Division.

It has long been conceded by the medical profession, and in later years by the public at large, that medical organization is essential to the interest of all. We can best serve each other and the public by organization. The medical profession is not primarily a business group, and it is difficult to apply business principles to its various activities. The time has come in the professional and business world when effective organization is necessary. We must organize if we ever expect to be heard justly before legislative bodies. It is exceedingly unfortunate that any ethical doctor should hold himself aloof from membership in his County Medical Society, and thus lose the personal benefits which the organization offers for himself, to say nothing of the aid which he might render to his fellow-man and the public at large.

## *Report of Vice-President Salter*

Northeastern Division

Three meetings with excellent scientific papers have been held in the district during the year. The first meeting was held in Sylacauga, Alabama. The following papers were read:

1. The Prevention and Modification of Measles—Dr. Joseph J. Repa, Montgomery, Alabama.
2. A Discussion of the Modern Treatment of Syphilis—Dr. D. G. Gill, Montgomery, Alabama.
3. A Discussion of the Poliomyelitis Epidemic in Alabama—Dr. J. N. Baker, State Health Officer, Montgomery, Alabama.
4. Diaphragmatic Hernia: Successful Operation (Lantern Slides)—Dr. Sam Ledbetter, Jr., Birmingham, Alabama.

The second meeting was held in Gadsden, Alabama, Feb. 16, 1937. The following papers were read:

1. The Causal Relation of Focal Infection to Abortion—Dr. Jas. R. Garber, Birmingham, Alabama.
2. Sterility, Using Rubin Apparatus—Dr. Gilbert Douglas, Birmingham, Ala.
3. Cardiovascular Syphilis—Dr. Seale Harris, Jr., Birmingham, Ala.
4. Speech Disorders of Childhood—Dr. John W. Simpson, Birmingham, Ala.
5. The Great Imitator—Dr. W. H. Y. Smith, Montgomery, Ala.

The third meeting was held in Anniston, Ala., March 16, 1937. The following papers were read:

1. Treatment of Heart Disease—Dr. J. O. Finney, Gadsden, Ala.
2. Lumphopathia Venereum: with Case Reports—Dr. Hugh Gray, Anniston, Ala.
3. The Diagnosis and Treatment of the Anemias—Dr. Roy R. Kracke, Prof. of Pathology, Emory University, Atlanta, Ga.
4. Bronchoscopic Studies (Lantern Slides)—Dr. Murdock Equen, Atlanta, Ga.
5. Diseases of the Left Colon and Rectum—Dr. Geo. F. Eubanks, Atlanta, Ga.
6. The Great Imitator—Dr. W. H. Y. Smith, Montgomery, Ala.

Thirty-eight doctors were present at the Sylacauga meeting, including four colored doctors. The paper on syphilis by Dr. Gill was discussed freely. The four colored doctors were given the privilege of the floor and all of them discussed the papers. The colored doctors need our sympathy and cooperation.

Fifty-one members attended the meeting at Gadsden, Ala. This was a most enthusiastic meeting and intense interest was manifested in all of the papers.

Sixty-seven doctors attended the meeting at Anniston. The wives of nineteen attended and were entertained by the Calhoun Medical Auxiliary. The ladies had dinner with the physicians. The meeting at Anniston was the most enthusiastic meeting that I have held during my seven years as vice-president of the Northeastern Division. It was quite an innovation to have the ladies with us. I was instrumental in securing Dr. W. H. Y. Smith to give his talk on syphilis (with lantern slide demonstrations) before the Anniston Rotary Club. He also delivered it to the 1,000 boys and girls of the Anniston High School.

It is a pleasure to cooperate with our State Health Department in putting on its educational program.

I have written letters to the officers of the seventeen counties urging that the state and delegate dues be paid, and to allow no doctor to be dropped from the society rolls.

## *Report of Vice-President Smith*

Northwestern Division

I must confess, realizing my own shortcomings, that it was with no little trepidation that I received the honor which you had given me and assumed these duties last year in Montgomery. It is with a great deal of pride that I wish to express my appreciation for the help and cooperation which the members of the division have extended me during the past year. Not only have they been liberal with their advice and generous in their attendance at the meetings but they have overlooked the blunders caused by my inexperience.

We have held three meetings during the past year. The first was held at Fayette, the second at Florence and the last at Jasper. The attendance was sixty, fifty-three and seventy-five respectively. All the counties except one have had representatives at one or more of these meetings. Thirteen scientific papers were read and one motion picture was shown.

As vice-president I have visited fourteen of the sixteen county medical societies in the division.

Among them is found a great variance of activity. One society is practically dormant, while very enthusiastic groups are found at Decatur, Cullman, Russellville, Fayette and Guin. It has been difficult to attend some of the meetings due to the long intervals between and to the lack of response on the part of the secretaries. This has also necessitated the writing of a large number of letters. I quite agree with Vice-President Hayes' recommendation of last year that all societies should meet at least once a month. A visit to one society in September revealed they were discussing correspondence received in February. A further suggestion would be that each secretary send a notice of each meeting to the vice-president of his division. In making these visits a total of 2,011 miles have been traveled.

## *Report of the Secretary*

Douglas L. Cannon

The membership of the Association, as enrolled April 1, 1937, is 1490—an increase of thirty-five in the number reported in my last annual report to you. The total number of physicians in Alabama, according to the rolls of county medical societies and the records of the Secretary's office, is 1890—one to every 1400 people. However, as is known to you, the concentration is greater in the largest county of the state, where there is one physician for every 992 persons. These deducted, the state-wide distribution, exclusive of Jefferson County, is on the basis of one doctor of medicine for every 1525 of the population.

Percentage of physicians identified with county medical societies is slightly more than 82, Negro practitioners numbering seventy-eight having been deducted from the aggregate.

Accessions to membership during the year have been offset sadly by the loss through death of thirty counsellors and members—among them a past-president, Dr. Samuel Kirkpatrick, and a number who had served their societies long and capably in official capacities. These are they for whom taps have been sounded since last we met: Life Counsellors A. D. James and F. P. Pettey; Active Counsellors E. B. Bailey, Joel C. Chandler, M. W. Dupree, Samuel Kirkpatrick and J. B. Moxley; and Members W. S. Adams, E. C. Anderson, S. R. Benedict, R. R. Bridges, T. A. Casey, E. H. Downs, W. T. Henderson, W. D. Hubbard, C. N. Lacey, T. L. Mastin, D. O. McCrary, W. T. Miller, R. A. Moorer, P. B. Moss, H. E. Pearce, R. D. Porch, J. L. Prince, T. Q. Ray, Gibson Reynolds, E. C. Rosamond, J. P. Stewart, W. D. Stickley, T. H. Sudduth and W. C. Vickers.

At the last meeting, five members—Thomas H. Appleton, Collinsville; Emmett T. Brunson, Samson; George S. Graham, Birmingham; Robert C. Hill, York; and John V. Howell, Marion—were elected counsellors. All accepted the honor, have complied with the provisions of the Constitution governing counsellors-elect, and at the proper time should be added to the Roll of Active Counsellors. Vacancies in counsellorships that will present at this session will be announced, according to constitutional requirement, at the close of tomorrow morning's session. Let it be sufficient at this time for your Secretary to set forth the congressional districts now known to be concerned and the reasons for the actual vacancies; that is, those resulting from causes other than expiration of term:

1st District—One vacancy because of the death of Dr. E. B. Bailey.
2nd District—Two vacancies. Dr. P. V. Speir is to be elevated to Life Counsellor; Dr. J. B. Moxley is dead.
4th District—One vacancy because of the death of Dr. S. Kirkpatrick.
6th District—One vacancy created by the death of Dr. Joel Chandler.
7th District—One vacancy. J. C. Martin is to be elevated to Life Counsellor.
8th District—Two vacancies. Dr. F. L. Chenault is to be elevated to Life Counsellor; Dr. M. W. Dupree is dead.

Credentials, duly executed by the President and Secretary, have been handed the Association's delegates to the American Medical Association, convening in Atlantic City, June 7-11. The terms of these representatives, Drs. J. N. Baker and A. A. Walker, expire with this meeting of the national body; and it will be a responsibility of the next president to name their successors, to serve two years.

It will be his prerogative, also, to fill vacancies as follows in the committees of the Association, resulting from expiration of term:

Mental Hygiene—One to succeed Dr. J. G. Bedsole.
Maternal and Infant Hygiene—One to succeed Dr. Hughes Kennedy.
Prevention of Cancer—One to succeed Dr. J. P. Chapman.
Prevention of Blindness and Deafness—One to succeed Dr. Job Cater.
Postgraduate Study—One to succeed Dr. Clarence Weil.
Fractures and First Aid—One to succeed Dr. W. S. Rountree.

Officers to be chosen at this meeting are a president, a vice-president for the Southwestern Division, two censors for five years to succeed Drs. T. B. Hubbard and W. D. Partlow, whose terms have expired; and sixteen counsellors.

## *Report of the Treasurer*

Jacob U. Ray

ASSOCIATION YEAR 1936-1937

GENERAL ACCOUNT

*Receipts*

| | |
|---|---|
| Balance, April 21, 1936 | $3,851.74 |
| Dues from counsellors (Exhibit A) | 1,040.00 |
| Dues from societies (Exhibit B) | 3,906.00 |
| Fees for delegates (Exhibit C) | 528.00 |
| Miscellaneous receipts— Interest | 174.64 |

*Disbursements*

| | | |
|---|---|---|
| Badges | | 39.41 |
| Committee expense | | 42.74 |
| Dues refunded | | 33.00 |
| Expense, division meeting | | 114.80 |
| Expenses, miscellaneous: | | |
| Allowance, adding machine | | 25.00 |
| Annual meeting | | 19.00 |
| Delegates, A. M. A. | | 118.63 |
| Directory, A. M. A. | | 12.00 |
| Honorarium, J. N. Baker | | 1,100.00 |
| Kirkpatrick design | | 10.00 |
| Treasurer's bond | | 25.00 |
| Postage, Secretary | | 86.25 |
| Treasurer | | 22.35 |
| Programs | | 181.35 |
| Salary, Secretary | | 600.00 |
| Treasurer | | 300.00 |
| Stationery | | 112.01 |
| Subscriptions to Journal (members-counsellors) | | 2,806.00 |
| Transactions | | 577.32 |
| | $9,500.38 | $6,214.86 |
| Balance, April 20, 1937 | | 3,285.52 |
| | $9,500.38 | $9,500.38 |

*Recapitulation*

| | | |
|---|---|---|
| Balance, April 21, 1936 | $3,851.74 | |
| Receipts, 1936-1937 | 5,648.64 | $9,500.38 |
| Disbursements, 1936-1937 | | 6,214.86 |
| Balance, April 20, 1937 | | $3,285.52 |

*Exhibit A*

Counsellors and Counsellors-Elect Remitting Dues

Abernethy, F. L.
Acker, P. J. M.
Alison, J. F.
Alison, S. B.
Anderson, T. J.
Appleton, T. H.
Ashcraft, V. L.
Bailey, E. B.
Beard, R. B.
Bedsole, J. G.
Brunson, E. T.
Burdeshaw, S. L.
Caldwell, E. V.
Cannon, D. L.
Carter, W. R.
Chandler, J. C.
Chenault, E. M.
Chenault, F. L.
Cowles, W. L.
Craddock, F. H.
Cryer, G. A.
Dabney, M. Y.
Dowling, J. D.
Dupree, M. W.
Eskew, M. H.
Garber, J. R.
Gilder, G. S.
Gragg, V. J.
Graham, G. S.
Granger, F. G.
Greer, W. H.
Gresham, W. A.
Hagood, M. H.
Hatchett, W. C.
Hayes, C. P.
Hayes, J. P.
Hill, R. C.
Hill, R. L.
Hodges, Rayford
Hollis, J. S.
Hough, J. S.
Howell, J. V.
Howell, W. E.
Hubbard, T. B.
Jackson, A. A.
James, N. G.
Jordan, S. E.
Kirkpatrick, S.
Leach, Sydney
Ledbetter, S. L., Jr.
Lester, B. S.
Lewis, W. A.
Lightfoot, P. M.
Long, Clarence
Lull, Cabot
Martin, J. A.
Martin, J. C.
Mason, E. M.
Mason, J. M.
Mayer, K. A.
McAdory, E. D.
McCall, D. T.
Moore, D. S.
Moxley, J. B.
Newman, S. H.
Noland, Lloyd
Nolen, J. A. M.
Oswalt, G. G.
Parker, L. D.
Perdue, J. D.
Price, A. B.
Ralls, A. W.
Redden, R. H.
Riser, W. H.
Rountree W. S.
Rucker, E. W.
Salter, W. M.
Scott, W. F.
Searcy, H. B.
Shaddix, M. L.
Shropshire, C. W.
Sledge, E. S.
Smith, G. R.
Smith, R. A.
Speir, P. V.
Tankersley, James
Taylor, W. R.
Thacker, V. J.
Thomas, E. M.
Tillman, J. S.
Waldrop, R. W.
Walker, A. A.
Walls, J. J.
Walsh, G. F.
Weldon, J. M.
Welch, S. H.
White, A. L.
Wilkerson, F. W.
Williams, M. J.
Wood, W. D.
Wright, D. H.

*Exhibit B*

| | |
|---|---|
| Autauga | $ 15.00 |
| Baldwin | 27.00 |
| Barbour | 33.00 |
| Bibb | 27.00 |
| Blount | 30.00 |
| Bullock | 27.00 |
| Butler | 36.00 |
| Calhoun | 117.00 |
| Chambers | 42.00 |
| Cherokee | 9.00 |
| Chilton | 39.00 |
| Choctaw | 21.00 |
| Clarke | 21.00 |
| Cleburne | 9.00 |
| Coffee | 27.00 |
| Colbert | 48.00 |
| Conecuh | 18.00 |
| Coosa | 12.00 |
| Covington | 39.00 |
| Crenshaw | 27.00 |
| Cullman | 39.00 |
| Dale | 24.00 |
| Dallas | 93.00 |
| DeKalb | 39.00 |
| Elmore | 45.00 |
| Escambia | 42.00 |
| Etowah | 126.00 |
| Fayette | 18.00 |
| Franklin | 48.00 |
| Geneva | 39.00 |
| Greene | 9.00 |
| Hale | 18.00 |
| Henry | 36.00 |
| Houston | 72.00 |
| Jackson | 33.00 |
| Jefferson | 990.00 |
| Lamar | 30.00 |
| Lauderdale | 66.00 |
| Lawrence | 24.00 |
| Lee | 51.00 |
| Limestone | 30.00 |

| | |
|---|---|
| Lowndes | 12.00 |
| Macon | 24.00 |
| Madison | 81.00 |
| Marengo | 48.00 |
| Marion | 30.00 |
| Marshall | 45.00 |
| Mobile | 267.00 |
| Monroe | 30.00 |
| Montgomery | 210.00 |
| Morgan | 57.00 |
| Perry | 21.00 |
| Pickens | 27.00 |
| Pike | 54.00 |
| Randolph | 39.00 |
| Russell | 12.00 |
| Shelby | 33.00 |
| St. Clair | 30.00 |
| Sumter | 30.00 |
| Talladega | 54.00 |
| Tallapoosa | 33.00 |
| Tuscaloosa | 117.00 |
| Walker | 90.00 |
| Washington | 12.00 |
| Wilcox | 36.00 |
| Winston | 18.00 |

Clay County did not remit dues.

*Exhibit C*

Delegate Dues Collected at 1936 Meeting

| | |
|---|---|
| Autauga | $ 8.00 |
| Baldwin | 8.00 |
| Barbour | 8.00 |
| Bibb | 8.00 |
| Blount | 8.00 |
| Bullock | 8.00 |
| Butler | 8.00 |
| Calhoun | 8.00 |
| Chambers | 8.00 |
| Cherokee | 4.00 |
| Chilton | 8.00 |
| Choctaw | 8.00 |
| Clarke | 8.00 |
| Coffee | 8.00 |
| Colbert | 8.00 |
| Conecuh | 8.00 |
| Covington | 8.00 |
| Crenshaw | 8.00 |
| Cullman | 8.00 |
| Dale | 8.00 |
| Dallas | 12.00 |
| DeKalb | 8.00 |
| Elmore | 8.00 |
| Escambia | 8.00 |
| Etowah | 8.00 |
| Fayette | 8.00 |
| Franklin | 8.00 |
| Geneva | 8.00 |
| Hale | 8.00 |
| Henry | 8.00 |
| Houston | 8.00 |
| Jackson | 8.00 |
| Jefferson | 28.00 |
| Lamar | 8.00 |
| Lauderdale | 8.00 |
| Lawrence | 8.00 |
| Lee | 8.00 |
| Limestone | 8.00 |
| Lowndes | 8.00 |
| Macon | 8.00 |
| Madison | 8.00 |
| Marengo | 8.00 |
| Marion | 8.00 |
| Marshall | 8.00 |
| Mobile | 12.00 |
| Monroe | 8.00 |
| Montgomery | 16.00 |
| Morgan | 8.00 |
| Perry | 8.00 |
| Pickens | 8.00 |
| Pike | 8.00 |
| Randolph | 8.00 |
| Russell | 8.00 |
| Shelby | 8.00 |
| Sumter | 8.00 |
| Talladega | 8.00 |
| Tallapoosa | 8.00 |
| Tuscaloosa | 8.00 |
| Walker | 8.00 |
| Washington | 8.00 |
| Wilcox | 8.00 |
| Winston | 8.00 |

Clay, Cleburne, Coosa, Greene and St. Clair did not remit dues for delegates.

Cherokee remitted for one.

JOURNAL ACCOUNT

April 1, 1936—March 30, 1937

*Receipts*

| | | |
|---|---|---|
| Balance March 30, 1936 | $1,559.44 | |
| Advertising | 2,801.95 | |
| Subscriptions—Association | 2,806.00 | |
| Non-Members | 24.00 | |
| Sundry receipts | 32.50 | $7,223.89 |

*Disbursements*

| | | | |
|---|---|---|---|
| Printing | 4,321.82 | | |
| Salaries—Cannon | 275.00 | | |
| Ohme | 420.00 | | |
| Pay | 100.00 | | |
| Wilkerson | 300.00 | | |
| Sundry expenses | 13.82 | $5,430.64 | |
| Balance, March 30, 1937 | | 1,793.25 | |
| | | 7,223.89 | 7,223.89 |

*Recapitulation*

| | | |
|---|---|---|
| Receipts | $7,223.89 | |
| Disbursements | | $5,430.64 |
| Balance, March 30, 1937 | | 1,793.25 |
| | 7,223.89 | $7,223.89 |

## *Committee of Publication*

Fred Wilkerson, Chairman

In the calendar year 1936, forty-eight scientific articles were published in the columns of The Journal—fifteen having been contributed by guest essayists, and thirty-three by members of the Association. Editorials in the same period numbered twenty-eight, covering a wide range of subjects. To those who contributed these the Committee of Publication expresses great indebtedness.

Receipts from advertising during the year amounted to $2801.95, which, with portion of dues

charged off for subscriptions, financed The Journal adequately.

The second publication of the Association, namely, the proceedings of the annual session—including the roster of physicians—was furnished all members.

The financial aspects of these items have been dealt with in detail in the Treasurer's report.

## *Committee on Public Relations*

John A. Martin, Chairman

Your committee submits its report this year believing that we are on the threshold of a new era in American life. Already we have observed the new trend of modern industry, the new demands of American workmen, the attempts to give help and security to the indigent and unemployed. Every day we see professions changing policies so as to keep abreast of the times. With government and business taking a new interest in the health and wealth of all people, the profession which is so essential to the health of the nation must consider ways and means of not only maintaining our place in the sun but must lead the way in giving more and better care of all people.

### MEDICAL SERVICE IN CONFORMITY WITH PUBLIC INTEREST

The New York Herald Tribune of December 1, 1936, commenting on the announcement in Washington that the Social Security Board had authorized a study of health insurance on a nationwide scale as a corollary to unemployment insurance, made these observations: "There is a big element in the population either needy, ignorant and reckless of health or with low earning power but a real pride that gets much less medical attention than it should. Aside from all humanitarian considerations, this is a matter for grave public concern. Those persons disabled by neglected injuries or illnesses are likely to become permanent and expensive burdens on private charity or public funds. They also incubate sickness to the detriment of the public health. Next, there are more well trained and competent doctors and nurses in the United States than can earn a fair return on their investments in education and training. This makes the cost of medical attention to those of average income, who want medical care and want to pay for it, discouragingly high. Faced with these conditions, all those persons who would rather have the government take any difficult problem off their minds and solve it expensively and inefficiently than think and work it out for themselves clamor at once for compulsory health insurance under federal control. Accepting such propaganda as a challenge, the medical organizations become so bitterly (if justly) critical of every compulsory insurance scheme—and are so much on the defensive—that they appear in their publications to be taking a let-well-enough-alone attitude. Against 'socialized medicine' in every form that has been tried abroad. they argue from abundant data that it constitutes an enormous tax burden, that it lowers the quality of medical care for all, that it does not improve public health and that it forfeits through perfunctory, impersonal treatment the confidence of those very elements in the population which it is designed to benefit.

"But mere hostility is not enough. The gap in medical care must be studied and a sound remedy devised. Otherwise the 'socializer' who has the bit in his teeth will prevail. To save the medical profession and the nation from the affliction of another European institution about as well suited to our temper as peace-time conscription, it seems to us that the doctors will have to consider forthwith how medical, nursing and hospital service can be rapidly extended in conformity with public interest and with their professional ideals."

The editorial comment of such a great cosmopolitan newspaper, whose sympathy is with the medical profession, forces to our attention the agitation from government and private agencies trying to create a change in the present system of medical practice which the public has neither asked for nor needs. In case the demand is created, have we constructive ideas and plans which will offer better treatment for patients by doctors in a true American fashion? Are our medical organizations selecting leaders who are willing to use their time and influence in working out ways and means for our betterment? This committee believes in the ideals of our Association and the integrity and sincerity of each member.

Let us glance at what has happened to other things in America. There has been a tendency to level all skills to the least common denominator. Business, industry and finance sometime ago read the handwriting on the wall and, in defense, have adopted the same weapon of public persuasion which had been used so effectively against them. We see the Corn Exchange Bank of New York using paid space in theatre announcement to present "a balance sheet anybody can understand." The New York Stock Exchange, through its president, sends leaflets to brokers and customers giving an inside view of its own machinery.

At the annual meeting of the National Association of Manufacturers at the Waldorf Astoria, December 9, 1936, Ernest T. Weir, Chairman, National Steel Corporation, delivered an address entitled "Industry Must Speak Constructively." The following day Mr. Walter D. Fuller, President of the Curtis Publishing Company, Philadelphia, Pa., delivered an address on the subject, "What Is This Public?" which shows the manner in which industry and business are regaining lost prestige and assuring themselves of place in the march of time.

In Barrons, The National Financial Weekly (Dec. 14, 1936: Vol. 16, No. 50), we find: "Industry's New Role—Heretofore all that was expected of industry was the production of goods, net addition to the national wealth. Today labor, the public and the government expect industry not only to produce the goods but also to see that the wealth it produces is equitably distributed."

Mr. Lewis H. Brown, President of the Johns Manville Corporation, keynote speaker at the Congress of American Industry, meeting in New York in December, had this to say: Americans "want work, more money. still more leisure, security against unemployment now and against poverty in old age, and more and better goods at lower

prices." To the latter he might have added more and better medical services at lower prices. Mr. Brown further stated, "We sometimes forget that the sole purpose of business is service. Profits must not be the end of business, but merely a measure of a service that has been well rendered."

We can never underestimate the value of good service in making a favorable impression on the public. The doctor who is careless or antiquated in the handling of his patients is the weak spot in our organization and the most vulnerable point of attack from those interests which are seeking to interfere with our work.

### THE PUBLIC WE ARE WORKING FOR

Since business conditions have improved, we can be more calm and collected in our approach of our problems. Let us give you a picture of this public we are working for. The Census Bureau estimates there are 127 million people in the United States and the population is growing at the rate of nearly ¾ million persons a year. The 127 millions can be broken down into 31 million families. The executive, professional, mercantile groups, including all sorts of executive jobs, everyone in white collar store jobs, all office clerical and all salesmen total about 25% of the grand total. Skilled trades take up about 27 per cent, agriculture about 15 per cent and unskilled and domestic service the balance of 33%. The national income of 1936 was estimated at 60 billion dollars. Three per cent of the 31 million families have incomes of $5,000 or more; nineteen per cent (including above three per cent) have family incomes of $2,000 or more; about thirty-three per cent have family incomes between $1,000 and $2,000; about twenty-three per cent have family incomes between $500 and $1,000; and twenty-five per cent have family incomes of less than $500. The average age is 30 years. About 52 millions are either under 20 or more than 65 years of age. The great mass of active workers constitute about 75 millions.

We now have our objective more clearly before us. We have total population groups, total family groups, family income groups, the active working groups, the aged group and those under 20 years of age. Alabama being an average state in population distribution but below the average in wealth distribution gives us more facts to work into our plans. With forty-two per cent (Brookings Institute 1929) of American families receiving less than $1,500 and almost sixty per cent receiving less than $2,000, there is little above the subsistence line for medical care.

### THE COUNTY MEDICAL SOCIETY MUST LEAD THE WAY

The foregoing thoughts upon the changes in social orders bring to the surface the necessity of considering a formula for the medical profession in its effort to meet its part arising with such changes.

The committee realizes that a specific plan cannot and should not be attempted for the profession at large, throughout the state, as it is very evident that a plan that would meet the situation in one section would not be practical in another. Therefore, a skeleton outline embracing the fundamental principles that should be observed by all county medical societies of the state is submitted for consideration.

1. Any plan for the care of indigent and low income groups must be formulated and endorsed by the county medical society.
2. Administration of clinics by an agency to be designated by the county medical society—either the county health unit, the Department of Public Welfare, the Community Chest or others.
3. Clinic nursing service and field work by public health nurses.
4. Clinic quarters and utilities maintenance to be provided by the community served.
5. Equipment, drugs, record blanks and other material to be provided from funds that may be granted from federal, state or local funds.
6. Cooperation of a social service department.
7. Payment to doctors for each clinic session attended.
8. The provision of adequate funds by the governing bodies of municipalities and of counties.
9. The correlation of preventive and curative medicine and the coordination of the various medical groups.

### THE PRACTICING PHYSICIAN AND PUBLIC HEALTH

The tendency of our people to move into congested districts makes the problem of communicable disease more serious to all practitioners. The rapid methods of transportation make spread of disease more rapid and more certain. The physician bears a responsibility to the public under such conditions. The public depends on the physician for ways and means of preventing diseases or controlling their spread. The demand has become so great that public health officers and nurses have been forced to do preventive work which the practicing physician should do. This condition is due to lack of interest or indifference on the part of practicing physicians. Preventive medicine is an essential part of a modern physician's armamentarium. If he elects not to use it he cannot blame others for doing so.

It has been one of the main objectives of your State Health Officer and Board of Health to have an organized health unit in each county. Much progress has been made but there are still counties without such service. This committee urges every member to support the movement. At times there will arise occasions when an outbreak of a serious disease threatens in a county where there is no health department. We believe this Association, through its Board of Health, should provide some method so that prompt assistance can be rendered by health authorities wherever there is a demand from any practicing physician.

We would like to call to your attention certain facts which time will not allow us to elaborate upon. This organization should resent untrue accusations against our profession. A British poet laureate wrote decades ago: "A lie that is a lie may be met and fought with outright. A lie that is half a truth is a harder matter to fight." We

have some of both appearing in periodicals at times.

According to a recent statement of Dr. Royal S. Copeland, Senator from New York, now is the time when the counsel of physicians is needed in legislative bodies as never before. Our experience in our own State Legislature shows that physicians are excellent lawmakers. We urge you to take more interest in law-making bodies.

The high cost of medical care in hospitalized cases cannot be shifted to the physician. The average major operative case, where special nursing service is used, shows that 2/3rds of the cost goes to hospital and nurse and 1/3rd to physicians. The 2/3rds must be paid before the physicians' 1/3rd. The cost of special nursing care equals the physicians' fees. The responsibility of cost in these cases should be explained to patients.

We again urge you to use the pages of our State Journal for interchange of ideas in all things pertaining to medicine. This committee has difficulty in getting answers to letters asking for material to be used in the Journal. Evasion of your responsibility makes your own work less certain.

### STATE LICENSE REFUND

The recent special session of the Legislature and the Governor of Alabama made to the medical profession of the state and to medical science a noteworthy contribution. To the several county medical societies, two-fifths of the state license paid by physicians for the privilege of practicing medicine is returned to the county societies. This money varies in the different localities, but it is of no more value to the profession in the larger centers than to those in small communities. The committee feels that cognizance should be taken of this matter and suggests the following recommendations that will assure the use of the refund for purposes for which it was intended by the legislature; namely, for the advancement of medical science and its practitioners, which in turn, becomes a community asset.

1. That, when necessary, the refund be used by societies to pay the $3.00 per member assessment to the Association so that at the annual convention of the Association no county medical society will be either wholly or partially delinquent in this respect.
2. That, when necessary, this refund be used for the payment of delegates' due to the Association so that at the annual convention of the Association no county medical society will be wholly or partially delinquent in this respect.
   Note: The committee feels that this refund could not be used for a better purpose than to promote the upbuilding and support of the ranks of organized medicine in Alabama. The above mentioned items are worthy of consideration.
3. That, when necessary, this refund be used to pay the dues of members of the respective county medical societies, when, in the judgment of the governing bodies of these societies it is deemed equitable to so employ this fund. The committee feels the urge to take every prudent step for assisting physicians to remain a part of organized medicine.
4. Employment of this refund for the institution of seminars throughout the various counties of the state is strongly advocated as a means of promoting postgraduate work. The vice-presidents of the four districts of the Association should arrange with one or a group of societies for such a program. Two, three or more counties can pool the funds for this purpose, selecting a central point among such counties for holding a seminar.
5. The fund should be used in large communities for the establishment and maintenance of libraries.
6. A refund could be used to advantage by any county society in its fight against illegal practitioners.

The committee warns the profession of Alabama that it would be wise for the doctors to judiciously utilize the refund that has been provided. Under no circumstances should monies accruing from this source be used to relieve members of the county societies from paying dues or to reduce dues to the vanishing point. The profession must maintain its sense of responsibility within its own ranks and all auxiliary funds that may be obtained must be expended for its progress. The committee insists that no county medical society be penurious in its approach to the problem herein discussed.

## *Committee on Mental Hygiene*

Frank A. Kay, Chairman

Your committee has made a sincere effort during the past year to carry on a program favorable to the advancement of the cause of mental hygiene and is most gratified to see an increasing professional and public interest in this most worthy and important cause.

Believing that results will come best from an educational standpoint, it has continued to align itself with recognized organizations interested in this problem. While your committee takes no credit for all accomplishments and interest in this direction, we do call attention to some concrete evidence of such activity.

Our state can still boast an Alabama Mental Hygiene Society meeting simultaneously with the Alabama Educational Association. This society has a more direct influence upon public school teachers than ordinary citizens. It presents helpful and stimulating papers and discussions looking toward a better understanding and solution of our problems. Your committee is actively represented at these meetings. We feel that the presence of a substantial number of practicing physicians at these meetings would be beneficial to the physicians and helpful and stimulating to the society.

The superintendent and medical staff of Bryce Hospital continue to invite classes in psychology

and sociology of our schools of higher learning to clinics and inspections of the hospital, thus affording many of our future citizens an opportunity to attain first hand information as to the care of intramural psychiatric cases and to learn something of the magnitude and importance of this subject.

Last July the University of Alabama and the State Department of Public Welfare held a series of conferences on social security in connection with the summer school. A portion of this conference was to deal with the "Development of a Mental Hygiene Program for Alabama." Your chairman was asked to preside. Unfortunately the epidemic of infantile paralysis resulted in a cancellation of this conference. It is hoped that mental hygiene will be included again in this year's conference discussions.

The State Department of Public Welfare now employs a full-time psychiatric social worker whose main efforts are directed toward consultation with and education of social workers and those whom they contact.

Parent-teacher organizations over the state pay keen attention to mental hygiene by having, in practically all large units, one program in the year to deal with this subject.

Our last year's report dealt somewhat at length with the need for clinics to care for extramural psychiatric cases. The need still exists, but the clinics will come only after the citizens of Alabama feel this need more keenly and demand its fulfillment.

We believe we, in the South particularly, are oversold on the promises and platitudes of mental hygiene and underinformed on the practical handling and treatment of psychiatric patients. Even to the practicing physician the matter of treatment in psychiatry is muddled and confused. The reason we so believe is that until very recent years the subject of psychiatry was either left out of curricula in medical schools or was confined to a description of the various types of psychoses and no particular therapeutic approach was demonstrated, and today there is no clear concept held by most physicians or citizens as to just what can be done for psychiatric patients and how it can be done. There are those who expect too much in the way of dramatic and immediate cures and those who have a fatalistic outlook and feel that little can be done except in the way of purely custodial care. There is a happy middle ground, but unfortunately it is not yet occupied by the majority of citizens. It is the duty of the medical profession to help give the public a clear practical view of this important branch of medicine as it has done with cancer, tuberculosis, and more recently with syphilis. Great help will gradually come as recently graduated physicians, trained in schools offering adequate courses in clinical psychiatry, begin to mellow in practice and spread their influence; as students now in colleges and universities adequately teaching mental hygiene become citizens and community influences; as we all from many sources reach a better understanding of what we should do with our problems in this field.

Your committee realizes that it cannot hurry time, but in its enthusiasm it sincerely desires and strives to hasten the day when these things shall be. Until then we try to content ourselves by disseminating information, making suggestions, stimulating interest and offering encouragement when and where we feel that we should.

## *Committee on Maternal and Infant Welfare*

A. E. Thomas, Chairman

The Committee on Maternal and Infant Welfare during the past year has confined its activities to a study of Alabama's maternal problems. It is particularly concerned with the cause of each death and the adequacy of the treatment rendered.

In the report of last year, the committee recommended further study through a modified maternal mortality study form.

Today, as yesterday, we are face to face with facts, not fiction, in regard to maternal mortality in Alabama.

The pertinent and serious facts are these:

1. Infection killed 128 mothers in 1936;
2. Toxemia killed 112 mothers in 1936;
3. Hemorrhage killed 49 mothers in 1936; and
4. Doctors were in attendance upon 211 of these 289 cases.

For every effect there must be a cause. In this instance, the effect is maternal deaths; the cause, the doctors. Analyzing professional services in these cases, the following are outstanding indictments:

1. Lack of appreciation of modern obstetric thought and precept;
2. Lack of co-operation with the many forces promoting progress in obstetrics;
3. Failure to recognize and interpret definite signs and symptoms of impending and existing complications;
4. Haste in clinical attention that encouraged radical treatment;
5. Disposition to palliate fatal outcomes with inadequacies of equipment, assistance and other items encountered at delivery;
6. Disregard for principles of surgery and obstetrics underlying the safe and sane conduct of maternity cases.

The committee has uncovered other responsibilities for maternal deaths, each one receiving the proper consideration in the detailed report. However, it is so obvious that physicians are in the vanguard of transgressors, in this connection, that attention to the minor offenders will avail nothing. As a sequence to this statement, of what value would it be to bring these offenders into camp when those working in these places add to their hazards and uncertainties?

The committee not only feels but knows there are ways and means for combating the evident deficiencies. Some of these follow:

1. Aid in eliminating ignorance, indifference and superstition;

2. Sympathetic co-operation with any and all agencies seeking improved services for maternity cases;
3. Development of postgraduate instruction;
4. Acceptance of and adherence to uniform prenatal, delivery and postpartum rules and technic;
5. Careful and accurate reporting of causes of death;
6. Consciousness of a profound and inescapable responsibility as obstetric attendants.

In conclusion, the committee offers a broader field of usefulness and of service to the profession and to the public:

1. Preeminent men in obstetric practice are available for instruction purposes. It is recommended that the Association make provision for frequent obstetric seminars throughout the several counties of the state, and that the necessary expense be defrayed by the Association in conjunction with county medical societies;
2. Publicity of proper and important maternal problems through the press, the radio and The Journal of the Association.

In submitting its report, the Committee on Maternal and Child Welfare merely summarizes its study for presentation of this hour. The detailed study will be found later in The Journal of the Association.

## *Committee on Cancer Prevention*

K. F. Kesmodel, Chairman

Your committee again urges the wholehearted co-operation of the members of this society in combating cancer. Each county society is urged to have at least one meeting each year devoted to some phase of cancer. The need of a careful and complete physical examination cannot be overemphasized and it is most desirous that patients' fears be not minimized. The diagnosis and eradication of precancerous lesions will do more to reduce cancer mortality than the treatment of established cancer.

This year the organization of the Women's Field Army has been started in Alabama. Mrs. W. C. Blasingame, of Tuscaloosa, has been designated Field Commander for this state. It is planned to have a vice-commander in each congressional district, and in each city to have assistants for the local work. As the appointment of the State Commander was not made until the latter part of December, little progress has been made in organizing the state. The committee urges all of you to help in the work as much as possible. The American Society for the Control of Cancer will furnish pamphlets and other necessary material for this work, but funds for such a campaign will have to be raised within the state by public subscription. Your help in publicizing the need for an educational campaign will help tremendously in forwarding this movement.

In the four years that the present chairman of your committee has been acting in this work some unusual and not entirely understandable ideas have been encountered. It is believed that these fallacious ideas are the result of early, unfortunate and discouraging experiences in dealing with cancer.

There are some who think that "efforts to enlighten the public about cancer only stimulate cancerphobia and increase morbid fears about the disease." The basis for most fear is ignorance and ignorance has its roots in mystery. Mystery and ignorance are overcome by education. The majority of people are sufficiently intelligent to respond to an educational program. We need only to glance at the tuberculosis program for an excellent example. There is every reason to expect that similar results can be obtained when the public is informed about cancer. It is undoubtedly true that there are individuals who suffer from imaginary illness, but this group comprises only a small proportion of the population, certainly not more than 2%. Shall, then, the 98% be deprived of this information which they will accept sanely and which will save many lives? The cancerphobes who should be of particular concern to the medical profession are the individuals who have known, suspicious symptoms but who refuse to learn the truth for fear they have cancer.

With every tenth death in the United States today due to some form of malignant disease it is high time the medical profession undertook a conserted program of cancer education.

A few within our ranks have raised the opinion that "cancer education drives the public to quacks." All of us are aware of the advantages of advertising. Just so does the cancer quack flourish because, over the radio, by flooding the mail with letters and by other means, he offers a positive cure by a treatment other than by surgery, which is abhorrent to many people. The physician who fails to tell his patient frankly what ethical medicine has done and can do for cancer is playing directly into the hands of these charlatans.

Occasionally we hear that "the profession has no cure or even hope to offer the cancer patient." This opinion is undoubtedly based on the observation that a majority of the cancerous patients do not seek aid until the disease is so advanced and they are so involved that a cure cannot be expected. On the other hand it is generally known that if the present knowledge of methods of prevention and cure of cancer were fully utilized alike by the profession and the public, total deaths from this disease could be reduced 50% and deaths from cancer in sites easily diagnosed would almost cease to occur. A short time ago the American College of Surgeons reported nearly 25,000 authenticated five-year cures; and there are doubtless thousands of other cured patients whose histories cannot be traced.

Another belief that is occasionally expressed is that "cancer patients will not cooperate in treatment." It has been the experience of many of us that these patients are as cooperative as are patients with any other chronic disease. This has been a drawback in the adequate treatment of syphilis, but we do not advocate the discontinuance of the treatment. When it is explained to a patient the necessity for prolonged treatment, even

after evidence of the disease ceases to exist, they usually return for the necessary treatment. The average patient likes to enjoy good health and wants to get well.

Probably the most dangerous thing to the welfare of the cancer patient is the belief that "a watchful waiting attitude on the part of the physician is often the best method to pursue." It would be just as logical in the face of an epidemic of smallpox or diphtheria for a physician to wait for positive symptoms of the disease before vaccinating or immunizing his patients. The physician cannot lose sight of the fact that the fate of the cancer patient rests with the first physician seeing the patient. Facilities are now available to practically all physicians for obtaining the answer to the cancer patient's problem and the physician who neglects to use these facilities is often writing his patient's death certificate. Unfortunately the public hears about and remembers the neglected case long after cases properly handled are forgotten. To the physician who said "I do not need any damn pathologist to tell me when I'm dealing with cancer," there is but one answer. He does not need a pathologist to help him because he would let the patient ride until a blind person could diagnose it from the advanced symptoms presented. No cancer of the uterus or breast is going to be diagnosed in an early stage except with the aid of the pathologist. As the public is becoming informed about the early signs of cancer, it is going to the profession with earlier lesions that require the pathologist with his microscope to give the answer. Another instance of watchful waiting is that of a patient with stomach symptoms who visited ten physicians in succession over a period of several months, not one of whom suggested an x-ray examination and only when the eleventh physician had an x-ray examination made was an advanced gastric cancer discovered. Other similar incidences could be recounted, but time forbids. But let us all take cognizance of this final thought: The medical profession has the opportunity to write another brilliant chapter in the conquest of disease by accepting wholeheartedly the responsibility for a service which it alone can render. Let us not be found wanting.

## *Prevention of Blindness and Deafness*

J. T. Cater, Chairman

The committee met at Talladega April 12, 1937. Present were Committeemen Dr. B. B. Warwick, Dr. Lucien Brown and Dr. J. T. Cater; Dr. Douglas Cannon, Secretary of The Medical Association of the State of Alabama, and Mr. D. H. Riddle, Superintendent of the Schools for the Blind and Deaf.

A general inspection of the institution was made. Especially noteworthy was the new campus hospital now under construction.

It was again recognized that the institution is, of necessity, a purely educational organ for the (supposedly) genuinely blind and deaf; that because of its limited resources from the state, it does not and cannot add to its educational role the function of a rigorous appraising station for determining the degree of visual or auditory impairment of those seeking admission.

The clinical fact was appreciated that some cases (e.g. congenital cataract) have reached a greater deterioration of vision by the age of six years (the lower age limit for admission) than they would have at much earlier ages. It was seen how some authority of far-flung activity, such as the State Board of Health, might aim at the detection of cases of visual impairment in the very young.

## *Committee on Postgraduate Study*

Ralph McBurney, Chairman

The first meeting of the committee was held at Montgomery, December 4, 1936, in the office of the State Health Officer. Those present were the State Health Officer, members of his staff, the president of the State Medical Association and all members of the committee.

This co-operative meeting was sought by the committee as it believed that the State Health Officer, because of his familiarity with conditions, was best qualified to aid the committee in adopting a program from which the people of the State of Alabama, through its Medical Association, would derive most benefit.

Owing to the nation-wide interest created in syphilis by the Surgeon General of the United States Public Health Service and his staff, as a health problem, and his desire to attain complete co-operation from the various states in a concerted drive against this scourge of mankind, it was unanimously agreed by the committee that syphilis control would be selected as its objective. The second meeting of the committee was held March 24th at the Employees' Hospital, Fairfield, Alabama, those present being the President of the Association and all members of the committee and subcommittees. The following active steps have been taken:

1. Appointment by the President of the Association of a subcommittee of two to collaborate with the general committee, the same to be physicians particularly interested in the disease. Dr. Seale Harris, Jr., of Birmingham, who has spent eight years in research and teaching clinical work in syphilis at Vanderbilt, and Dr. D. G. Gill, Director of the Bureau of Preventable Diseases, State Department of Health, were appointed.

2. The President of the Association was asked to allot a time on the program of the annual meeting for a discussion of syphilis, one period being allotted to the public meeting. This has been done. Dr. Seale Harris, Jr., will give a paper on cardiovascular syphilis, during the regular session, and Dr. E. W. Norris, U. S. Public Health Service, Hot Springs, Arkansas, one entitled "Syphilis" at the public meeting.

3. Through co-operation of the State Health Officer and the Jefferson County Health Officer, Drs. D. G. Gill and George Denison will have an exhibit and a sound movie on syphilis. Demonstration of the capillary tube method of obtaining specimens for dark field and examination of the same will be conducted.

4. Literature on syphilis, diagnosis and standard-

ized treatment will be given to physicians attending.

5. The papers and exhibits on syphilis are to be publicized to physicians of the state through the press prior to and at the meeting.

6. Following the annual meeting of the Association, the committee will follow up by sending a communication to each county society, calling attention to the syphilis problem and offering speakers for county societies and divisional meetings of the State Association for discussions and demonstrations on the newer methods of diagnosis and treatment, the State Health Department cooperating in furnishing speakers.

7. Until the program of the committee has been well established within the medical organization no activity within lay groups will be considered.

8. Full co-operation by the State Health Officer is assured in aiding the committee to serve The Medical Association of the State of Alabama.

### *Committee on First Aid and Fractures*

Earle Conwell, Chairman

This committee has been formed one year only. However, during such short time we have tried to stimulate interest among the profession by emphasizing the proper treatment and methods to be used in transporting the injured. Medical Societies in Walker, Fayette, Madison, Etowah, and Cullman Counties have been attended by the chairman where such subjects have been given.

It is the desire of the committee to have doctors in certain localities to properly instruct individuals to carry out first aid to the injured. Cooperation also in certain localities, especially Birmingham, has been carried out with the Red Cross officials relative to the establishment of first aid stations on the highways.

We feel, with the continuance of this and with time, that much good can be done so far as teaching first aid to the injured, thereby preventing permanent damage to the injured.

### *Miscellaneous Business*

Appeal of Dr. John D. Burns from action of the Franklin County Medical Society in the matter of his membership was presented to the Association; and referred, without discussion, to the Board of Censors.

There being no further business, the Association was declared at recess until 2:00 P. M.

#### Afternoon Session, Tuesday, April 20

#### 2:00 O'Clock

Dr. W. Groce Harrison, Jr., of Birmingham, presented a paper on "The Modern Conception of Congestive Heart Failure."

Dr. Clarence R. Bennett, Eufaula, continued with "Angina Pectoris."

The contributions of Drs. Harrison and Bennett were discussed jointly by Drs. H. R. Carter and T. K. Lewis of Birmingham; and Dr. F. G. DuBose, Maplesville.

"The New Protamine Insulin in the Treatment of Diabetes Mellitus" was the subject of Dr. D. B. Snelling's paper, which was discussed by Dr. G. O. Segrest, Mobile; Dr. Clarence Weil, Montgomery; and Drs. Seale Harris, Sr., and J. S. McLester of Birmingham.

Dr. J. B. McLester, Birmingham, dealt with "The Functional Patient." His paper was discussed by Dr. E. D. Lineberry, Birmingham.

Dr. J. O. Morgan, Gadsden, presented a paper on "Mucocele of the Appendix," discussed by Drs. S. L. Ledbetter, Jr., and Robert Hamrick, Birmingham.

The Association recessed until 8:00 P. M.

#### Evening Session, Tuesday, April 20

#### 8:00 O'Clock

Dr. Hamilton McKay, Charlotte, North Carolina, discussed "Certain Phases of Pediatric Urology."

Drs. Lee F. Turlington and Clifford Lamar, Birmingham, were joint contributors of a paper entitled "Contraception, its Need, Purpose and Accomplishment."

Dr. Porter P. Vinson, Richmond, Virginia, read a paper on "The Bronchoscopic Management of Pulmonary Abscess."

### *Miscellaneous Business*

Resolution introduced by Dr. Seale Harris, Sr., bearing on an enduring memorial to Dr. J. Marion Sims, was referred to the Board of Censors.

The Association recessed until 9:00 A. M., Wednesday.

#### Second Day, Wednesday, April 21

#### 9:00 A. M.

Dr. Melson Barfield-Carter's paper, "Paget's Disease," was discussed by Dr. O. R. Troje, Fairfield.

Dr. J. D. Peake, Mobile, gave a "Report of 189 Cases of Carcinoma of the Cervix," which was discussed by Dr. K. F. Kesmodel, Birmingham.

The "Clinical Importance of Simple Cysts of the Ovaries" was dealt with by Dr. E. V. Stabler of Greenville; and discussed by Dr. G. F. Douglas, Birmingham.

Dr. G. F. Walsh presented a paper on "Psychogenic Factors in Disease."

The Jerome Cochran Lecture was delivered by Dr. Frank H. Lahey, Boston—his subject, "Carcinoma of the Colon and Rectum."

*Miscellaneous Business*

Vacancies in the College of Counsellors were announced by the Secretary.

A recess was declared until 2:30 P. M.

**Afternoon Session, Wednesday, April 21**

**2:30 O'Clock**

Dr. Seale Harris, Jr., Birmingham, presented a paper on "Cardiovascular Syphilis," which was discussed by Drs. Courtney W. Shropshire, T. K. Lewis, Andrew Glaze and H. S. Ward of Birmingham; and Dr. M. B. Cameron, Eutaw.

Dr. Hugh Dent Johnson, Montgomery, continued with "Presacral Sympathectomy in Dysmenorrhea," discussed by Drs. Gilbert Douglas, J. M. Mason and Chalmers Moore, Birmingham.

Dr. Earle Conwell exhibited a motion picture dealing with "Emergency Traction for Safe Transportation in Fractures of the Long Bones."

Miss Anna M. Tracy, Chairman, Administration Section, American Dietetic Association, Tallahassee, Florida, read a paper entitled "Hospital Dietetics." It was discussed by Dr. A. J. Gay, Roanoke.

*Miscellaneous Business*

Resolution introduced by Dr. C. W. Shropshire was referred by the President to the Board of Censors.

The Association recessed until 8:00 P. M.

**Evening Session, Wednesday, April 21**

**8:00 O'Clock**

The Association's public meeting, held in the auditorium of Phillips High School, was addressed by the President of the American Medical Association, Dr. Charles Gordon Heyd, New York; and Dr. E. W. Norris, United States Public Health Service, Hot Springs, Ark. Dr. Heyd's subject was "The Contribution of the American Medical Association to the Public Health"; Dr. Norris'—"Syphilis."

The Association then adjourned for a reception and dance at Highland Park Country Club; and to reassemble at 9:30 A. M., Thursday, April 22, for its final session.

(To Be Concluded)

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# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### IMMUNITY IN MALARIA*

#### I. INTRODUCTION

Ashford[1] states "malaria is perhaps the most elusive and thus the most intriguing of the world's pan-endemics. In the past decade this disease has been the subject of extraordinary research. The reports of competent observers are so replete with puzzling contradictions that the advancement of knowledge is greatly hindered. In fact the very multiplicity of these reports raises an obstacle in place of a bridge across the abyss of our ignorance with respect to certain vital factors involved in its epidemiology."

In a previous paper (J. M. A. Alabama 6: 393-394, June '37) the importance of early diagnosis and adequate treatment was stressed. On the other hand, since recent observations indicate the close relationship between treatment and immunity, it seems advisable to discuss immunity as it occurs in malaria. Thomson[2] writes: "Within recent years a more accurate knowledge of immunity in malaria has gradually been acquired; but it is necessary to stress the fact that there are many unsolved problems of great importance. It is not too much to state that if the mechanism of immunity in malaria were entirely solved the control of

*First of a series on the subject. The next will appear in an early issue.

1. Ashford, M.: The Nature of Immunity to Malaria in its Relationship to Antimalarial Therapy, Am. J. Trop. Med. 16: 665-678 (Nov.) '36.

2. Thomson, J. Gordon: Immunity in Malaria, Trans. Roy. Soc. Trop. Med. & Hyg., 26: 483-503 (May) '33.

the disease and its treatment would be nearer accomplishment."

## II. IMMUNITY IN GENERAL

### *Definitions*

Before entering upon a review of the literature the terms "immunity" and its antithesis "susceptibility" should be defined. Topley[3] maintains that "as plain English, *immunity* does not mean what it says . . . It happens that the state suggested by the word . . . is one about which we know very little, except that it exists . . . Our main business is with those interactions between parasite and host that are characterized by a fluctuating equilibrium, so that sometimes the parasite, sometimes the host gains the upper hand. Resistance would be a better word than *immunity;* but *immunity* will serve well enough so long as we make it clear that we are using it to denote the resultant of two opposing systems, and this resultant can assume any value from zero to infinity."

Zinsser and Bayne-Jones,[4] after showing the early idea that the mere coming together of the host and the parasite does not result always in disease because of certain natural defensive mechanisms in the host, state that "the power which enables the body to accomplish this is spoken of as 'resistance.' When this resistance, which in some degree is common to all members of the animal kingdom, is especially marked, it is spoken of as 'immunity.' From this it follows naturally that the terms resistance and immunity, as well as their converse, susceptibility, are relative and not absolute terms." The importance of this last statement cannot be over emphasized. It is doubtful if the state of "absolute susceptibility" occurs in Nature, and "absolute immunity" is present but rarely and then usually as an attribute of species—or, in other words, a natural immunity which is inherited. Most certainly, immunity which is produced by artificial means is a relative affair, depending upon the reactivity of the host and can in most cases be overcome by massive doses of the infecting organism or by smaller amounts of extremely virulent parasites.

3. Topley, W. W. C.: An Outline of Immunity: London, Edward Arnold & Co. 1933.

4. Zinsser. H. and Bayne-Jones, S.: A Textbook of Bacteriology: New York. D. Appleton-Century Company, 1935.

Since the etiologic factor of malaria belongs to the protozoa, there has been considerable argument concerning the similarity of the problems of immunity in this type of disease to those in maladies caused by bacteria. Thomson[2] believes that there is a close relationship. Gill[5] thinks that there is as yet insufficient data to assume that the mechanism of immunity in protozoal and bacterial diseases is different. On the other hand James[6] and Watson[7] maintain that there is a great difference. However, exactly what these differences are and what the precise processes of immunity are in malaria nobody is prepared to say.

Because the information is fragmentary new words have been coined to describe certain conditions. Sergent, Parrot and Donatien[8] have proposed the word "prémunition" in French or "premunition" in English and think that it better describes the condition which we, in our ignorance, call "immunity" in malaria. In reality it indicates resistance to infection as a result of a still existing infection. They state: "The tolerance results from a state of chronic and latent infection—which is not necessarily a state of chronic disease; the *resistance* is contemporaneous with this latent infection and ceases with it. It follows that premunition prevents a superimposed infection of the subject, but not *reinfection* when definitive and complete cure intervenes. From this premunition is opposed to true immunity, in which the resistance to new infections is consecutive to the infection and survives it, preventing reinfections for a long time after the disease and its cause have disappeared; to state it otherwise, premunition is a coinfectious, refractory state; true immunity is a post-infectious, refractory state."

Yorke,[9] although he does not like the term "immunity," feels that the use of the word "premunition" is unwarranted. Since

5. Gill, C. A.: Immunity in Malaria, Trans. Roy. Soc. Med. & Hyg. 27: 281-285 (Nov.) '33.

6. James, S. P.: Discussion of Thomson, J. G.: Immunity in Malaria. Trans. Roy. Soc. Med. & Hyg. 26: 505-508 (May) '33.

7. Watson, M: Ibid. 508-511.

8. Sergent, Edm. et Et., Parrot, L., et Donatien, A.: Prémunition et immunité dans le paludisme et dans d'autres maladies, Trans. Roy. Soc. Med. & Hyg. 27: 277-280 (Nov.) '33.

9. Yorke, W.: Discussion of Thomson, J. G.: Immunity in Malaria. Trans. Roy. Soc. Med. & Hyg. 26: 510-511 (May) '33.

we know so little about immunity in malaria he suggests that the differences noted in malarial immunity may be quantitative rather than qualitative. He states: "I prefer the word 'tolerance'; I do not like the word 'immunity' applied to a condition where the animal is infected."

In order to avoid confusion the term "immunity" will be used throughout this series of articles to indicate the resistant state in malaria. It has been repeatedly emphasized that a multiplicity of words for the same condition never serves to clarify.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### MENINGITIS IN ALABAMA

Cerebrospinal meningitis due to the meningococcus is a disease which ordinarily occurs in sporadic form in Alabama, but which appears in epidemic form from time to time. The last epidemic year was 1931 when there were 226 cases of the disease reported—many of them occurring in one of the state prisons. For the next five years the reported cases averaged 66 per year, varying from a low of 43 in 1934 to a high of 97 in 1936.

March and April are usually the months of peak incidence and this was true of 1936 and most of the excess occurred in those two months. Beginning with January of 1937 there was a sudden spurt in cases and this increase has kept up during the first five months of the year. In January there were 19 cases recorded, 18 in February, 55 in March, 60 in April and 53 in May, or a total of 205 cases for this five-month period.

Meningitis has a tendency to appear in epidemic form whenever larger numbers of people are brought into close association so is a problem of army camps, prisons, etc. The increase this year, however, could not be blamed on any institutional outbreak, but has occurred in the general population of one section of the state. Jefferson County has been responsible for 170 of these 205 cases, with an additional 8 cases being in Walker County adjoining. About half the cases have been in the City of Birmingham and the remainder scattered through the county. Negroes have been affected in the ratio of approximately 3 to 1 over whites.

Normally, a small percentage of the population act as carriers of the meningococcus and are responsible for the sporadic cases that occur. The presence of an undue number of carriers, or of a particularly virulent strain of organisms, must be assumed since no common source of infection could be determined.

The administrative control of meningitis is difficult since there is no means of immunization or no test for immunity. Isolation of the patients and adequate treatment are imperative. In the field of treatment there have been two recognized agents —the serum in use for many years and the newer antitoxin. Both have been used in these cases and it is hoped that a report of their efficiency will be made. Experimental evidence of the value of sulphanilamide alone, or in combination with serum in the treatment of meningitis in mice, has recently been published by Branham and Rosenthal.[1] The authors conclude that the results of their experiments suggest that a combination of drug and serum therapy in meningococcus and pneumococcus infections in man is worthy of trial.

Improved therapeutic procedures that will reduce the mortality rates offer the greatest hope at present in combating meningitis.

### CONTINUITY OF TREATMENT IN SYPHILIS

The question asked many times by physicians is: "We believe in continuous treatment of syphilis for a period of 18 months to 2 years but our patients do not believe. How can we make them realize this?" It would appear that that the following quotation answers, in part at least, this question: "The control of syphilis must depend upon the extent to which the patient can be trusted. How well he can be trusted depends a great deal upon how carefully he has been instructed."

Many patients with syphilis receive no more instruction, as to its communicability, the effect of treatment and the disasters of no treatment, than to be told they have bad

1. Branhan, S. E., and Rosenthal, S. M.: Sulphanilamide, Serum, and Combined Drug and Serum Therapy in Experimental Meningococcus and Pneumococcus Infections in Mice, Pub. Health Reports 52: 22 (May 28) '37.

blood, a positive Wassermann or that they have a blood disease. Most patients have a sad lack of knowledge of the facts about the disease they have acquired and the doctor has not helped a great deal. If we placed ourselves in their predicament would we go ahead blindly and be treated for a long period of time without knowing any valid reasons why we should? Would we? We are afraid we wouldn't. Human nature is human nature regardless of who we are. When we felt better we'd break away too.

All patients with syphilis must be taught something. This something is guided by the mode of infection, the stage of the disease, the status (financial, marital, etc.) of the patient and the requirements of treatment. Instruction must be individual to a great extent in private practice. Mass instruction in a clinic can accomplish a great deal but this should be followed by individual instruction adapted to the particular needs of the patient. The patient's finances should be considered. Some can pay much, others can pay good, others can pay little and some can pay nothing. Is it fair to dump all into a common hopper and each pay the same? Won't continuity of treatment suffer? It probably will. The marital status must be considered. White lies to keep a home intact are far better than the truth if the truth causes divorce. The amount and continuousness of treatment depend upon the stage and type of disease. Early syphilis has different treatment requirements than has late syphilis; cardiovascular syphilis requires different treatment schemes than does neurosyphilis.

The State Health Department has a bulletin entitled "To The Patient With Syphilis." It was prepared as a help to physicians in instructing their patients. The bulletin was written for the average patient. Individual problems are not discussed since individualized instruction is the physician's responsibility.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### ALABAMA'S ORAL HYGIENE PROBLEM

The Division of Oral Hygiene has been reestablished in the State Health Department and is now a part of the Bureau of Hygiene and Nursing. Reuben T. Crawford, D. D. S., has been appointed chief of the Division. Miss Martha Walters, an experienced public school teacher who has had special training in nutrition and oral hygiene, has been appointed oral hygiene teacher to assist Dr. Crawford in the program. An advisory committee representing the Alabama Dental Association cooperates in promoting the activities sponsored by the oral hygiene division.

The aim of the Alabama oral hygiene program is to create a desire in the patient to keep a clean mouth, and to seek the services of a dentist for corrective measures before the conditions become so severe that the general health of the individual is impaired. Educational work in oral hygiene is the principal purpose of the program. The program will be carried out with the cooperation of the county health officers, county school superintendents, district dental societies and especially the individual school teachers.

The staff dentist will discuss the subjects relating to oral hygiene before dental and medical societies, civic clubs, and parent-teacher associations. A special course in oral hygiene will be presented in all of the summer teacher training schools in the state. The teachers will then, in turn, instruct their pupils. In this manner a greater number of people can receive early benefits from the program. The oral hygiene teacher will assist in the preparation, revision and presentation of educational materials for use in the schools.

The working plan of the dental program will be to concentrate in individual counties. The average time allotted to any county to present a successful program will be from seven to ten days. During this time the staff dentist and the oral hygiene teacher will appear before medical and dental societies, civic clubs and parent-teacher associations in order to arouse a generalized interest in oral hygiene.

The most important and successful work will be done in the individual class room. Demonstration models will be used to explain dental conditions. Toothbrushing technique will be taught by demonstration on typodonts which represent all of the teeth and the proper occlusion of the two jaws. The students will be instructed in

nutrition and the care of the teeth. Motion pictures on care of the teeth will be shown whenever possible.

Within a short time a great deal of interest should be aroused. Then the local dentists will make the dental inspections in the schools. A complete examination and diagnosis will not be attempted for various reasons. The inspection reveals to the patient if dental attention is needed. When no dental work is necessary the child will be given an okeh statement, addressed to the parents, which should encourage the continued good care of the teeth. When dental work is necessary the child will be given a statement, addressed to the parents, advising that the necessary dental work be obtained immediately.

After proper dental attention is secured the dentist will give the child a dental certificate, to be taken to the school teacher. The teacher keeps this certificate with the permanent record of pupils with okeh or defective mouths. When possible, a check-up will be made by the oral hygiene teacher cooperating with the school teacher two months after the initial program. This check up will consist of instruction on nutrition and care of the teeth. Also, the permanent dental records will be examined to determine the number of okeh mouths that have been obtained as a result of this program.

Educational materials can be secured from the central office. The material consists of bulletins, charts, booklets and posters. Books containing acceptable health stories are recommended upon request.

Nutrition, the care of the mouth, and the relation of mouth health to general health are emphasized in this program.

R. T. C.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### PERMANENT IMPROVEMENT FOR MUNICIPAL MOSQUITO CONTROL

Much progress has been made in the elimination of ponded water in and near our populated centers. This improvement was made for land reclamation, mosquito and malaria control, and other purposes. Malaria transmission has been markedly reduced if not practically eliminated in the cities and towns. This is within itself a very creditable accomplishment.

A large portion of this drainage was accomplished by open and unlined ditches. The rapid deterioration of these drains together with the prolific growth of vegetation causes them to become suitable for mosquito breeding if not oiled or properly maintained. Many of these channels actually become clogged with debris and silt to an extent where their usefulness is lost.

The cost of maintaining and oiling open ditches is relatively expensive and a yearly necessity. The question is often asked, "What can be done to improve this condition, lower this yearly expense and be financially possible?" The closed and completely covered sewer below the ground is recognized as the desired method, as no land area is lost. The cost of this type construction often prohibits its installation. There is a less expensive method for improving the drains which consists of lining the bottom and a portion of the banks of the ditch with an impervious material and leaving the top open. Some of the materials that may be used are concrete, terra cotta, masonry, and treated timber. Commercially made pipe sections or inverts of concrete and terra cotta of several sizes can be purchased. Semi-circular and trapezoidal sections can be made locally with concrete through the use of special forms. Masonry lining, where material is native, is often used.

A report entitled "Drainage Ditches Covered Economically" is given in Reprint No. 995 from the Public Health Reports of March 13, 1925. This report describes an undertaking in a city of about 3,000 population to improve its system of approximately nine miles of open drains. The manufacture of two sizes of concrete pipe of 24-inch and 30-inch diameter and 30 inches long is explained. The metal forms which were used cost $42.20 and $56.00 respectively. The 30-inch pipe was made 2½ inches thick and the smaller pipe was 2 inches in thickness. The concrete mixture consisted of 1 part Portland cement, 1¾ parts sand and 2¾ parts of small gravel. Four hours of labor at an average of 22½ cents per hour were required to remove and clean the forms and pour two joints of pipe. The material for these two joints of pipe

cost $3.00 which, with the labor cost and proper proportioning, made the 24-inch pipe cost 66 cents and the larger pipe cost 92 cents per lineal foot. This expense was about 30% of the quoted price of commercially manufactured pipe in carload lots. It was found that the cost could be further reduced by the use of more forms. These costs are for pipe. Where the drain is to be left open and the bottom, and a portion of sides are to be lined, a segment of the pipe is all that is required. In case of a semicircular section the cost would be about one-half of that for a pipe and for a 1/3 portion of the pipe the cost would be proportionately reduced.

The advantages of this procedure were outlined as follows:

(1) A small outlay for equipment.
(2) The pipe can be made at odd times, as much or as little as funds will permit.
(3) There is practically no overhead when the molds are not in use.
(4) A low cost of manufacture, with resulting greater accomplishment in proportion to expenditure.
(5) Equipment always on hand to manufacture pipe when needed.

Puerto Rico, an island of about 3,600 square miles and having a population of 1,750,000, is improving its drainage with concrete pipe, concrete circular pipe sections, and concrete trapezoidal inverts manufactured with relief labor. The pipe and circular inverts are made of a mixture of one part cement and 3 parts sand, and the mixture for the trapezoidal inverts consist of 1 part cement, 3 parts sand, and 2 parts fine gravel. The trapezoidal forms were made locally of lumber.

The main objection to the manufacture of pipe and lining is the rate at which the concrete can be poured as the forms have to remain in place until the concrete has set for at least 24 hours. However, constant daily operations will result in many feet being made with each form during a year.

The inverts can be of different parts of a circle for the various sized ditches and volumes of water. The advantage of using a half circle invert is that it can be capped readily with a similar section and later become an underground sewer.

It is believed that the lining of open drains with an impervious material is worthy of consideration. The carrying out of a portion of this type improvement each year would progressively reduce the maintenance and mosquito control costs of the ditch system.

F. B. W.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 | | Estimated Expectancy |
|---|---|---|---|
| | April | May | May |
| Typhoid | 6 | 14 | 26 |
| Typhus | 20 | 25 | 14 |
| Malaria | 102 | 262 | 201 |
| Smallpox | 1 | 5 | 29 |
| Measles | 61 | 107 | 554 |
| Scarlet fever | 41 | 27 | 30 |
| Whooping cough | 205 | 197 | 161 |
| Diphtheria | 34 | 40 | 38 |
| Influenza | 1838 | 372 | 154 |
| Mumps | 284 | 184 | 103 |
| Poliomyelitis | 2 | 3 | 2 |
| Encephalitis | 3 | 5 | 2 |
| Chickenpox | 108 | 156 | 156 |
| Tetanus | 5 | 3 | 3 |
| Tuberculosis | 264 | 334 | 332 |
| Pellagra | 10 | 31 | 102 |
| Meningitis | 60 | 53 | 7 |
| Pneumonia | 623 | 346 | 254 |
| Syphilis | 1437 | 1367 | 191 |
| Chancroid | 9 | 14 | 8 |
| Gonorrhea | 397 | 438 | 180 |
| Ophthalmia neonatorum | 1 | 3 | 2 |
| Trachoma | 0 | 0 | 1 |
| Tularemia | 1 | 3 | 1 |
| Undulant fever | 1 | 8 | 4 |
| Dengue | 1 | 0 | 0 |
| Amebic dysentery | 3 | 1 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 98 | 118 | |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

## *Truth About Medicines*

### PROPAGANDA FOR REFORM

Crosley Xervac—Preliminary Report.—The Council on Physical Therapy reports that the Crosley Xervac, manufactured by the Crosley Radio Corporation, Cincinnati, is an apparatus developed by Dr. Andrew A. Cueto for stimulating the growth of hair. The apparatus consists of a compressor and a vacuum pump, controls to regulate the pressures, and a helmet through which these pressures are applied to the scalp. It may be operated either by alternating or by direct current. The theory, according to the firm, is that alternate vacuum and pressure of extremities of the body build up the deep network of blood vessels, thus supplying blood in sufficient quantities to desired points. Insufficient evidence has come to the attention of the Council to substantiate the alleged physiologic action, or to determine harmful ef-

fects, if any, connected with its use. The number of cases reported is insufficient on which to determine the usefulness of the device or to show what types of baldness, if any, respond favorably. The Council therefore voted the Xervac inadmissible for inclusion in the list of accepted devices but will reconsider the apparatus without prejudice, if scientific evidence is submitted. (J. A. M. A., May 1, 1937, p. 1505.)

Denicotea.—Two packages of Denicotea were submitted to the A. M. A. Chemical Laboratory for examination. One package contained one cigaret holder and ten cartridges. The second package contained ten cartridges. The cartridges were presumed to contain a silica gel to remove the nicotine and other ingredients in tobacco smoke. The label stated in French that the toxins of tobacco (nicotine, pyridine, ammonia and resinous acids) were removed from the smoke. The cigaret holder was fashioned with a cavity in which a tube case could be inserted. The tube cases were colorless, brittle cylinders containing colorless, granular material. Qualitative tests showed the presence of silicic acid in the granular material. Resinous material was found in the smoke after it had passed through the tube case. For the determination of nicotine, average smoking conditions were reproduced as closely as possible. From the figures obtained it may be calculated that under ordinary conditions Denicotea removes approximately 60 per cent of the nicotine from the smoke of cigarets without filter when a new case is used and approximately 50 per cent after nine cigarets are smoked. It removes approximately 47 per cent of the nicotine from the smoke of cigarets with filter when new and approximately 40 per cent after seven cigarets have been smoked. It removes cyanides, pyridine and some of the resinous material from smoke. According to the experiments, the product is approximately 60 per cent efficient on the first smoke and its efficiency decreases, so that by the time twenty smokes are made through the same cartridge it would appear that there would be no appreciable denicotinizing effect at the end of the series. (J. A. M. A., May 1, 1937, p. 1505.)

Standardization of Digitalis Products Accepted for N. N. R.—The Council on Pharmacy and Chemistry has given extensive consideration to the question whether all the digitalis and digitalis-like preparations listed in New and Nonofficial Remedies should be standardized by the official U. S. P. method, even though they are also assayed biologically by any other acceptable method. The various firms concerned were consulted and their replies were reported to the Council. The Council voted that manufacturers of digitalis and digitalis-like preparations be not required to change the method of standardizing such products as are now assayed by a satisfactory method. (J. A. M. A., May 1, 1937, p. 1506.)

Glutamic Acid Hydrochloride-Calco Not Acceptable for N. N. R.—Glutamic Acid Hydrochloride-Calco was presented by the Calco Chemical Company for the consideration of the Council on Pharmacy and Chemistry as "a superior source of free hydrochloric acid for the treatment of Achlorhydria, Hypochlorhydria, Achylia Gastrica, Nervous Anorexia and Anemias (Requiring a High Protein Diet) and to Supplement or Replace Gastric HCl where such action is desirable." It is a solid substance which was presumed to yield hydrochloric acid when dissolved. The firm submitted a considerable amount of chemical data concerning the product but presented no references to the literature or other evidence of its clinical effectiveness as a conveyor of hydrochloric acid. The A. M. A. Chemical Laboratory found that the product complied with chemical tests and standards submitted by the firm. In view of the fact that the firm apparently based its opinion as to the usefulness of the product on laboratory assays, which did not include digestion experiments, the A. M. A. Chemical Laboratory was requested to undertake further examination. After many experiments the Laboratory came to the conclusion that glutamic acid hydrochloride inhibits peptic digestion in vitro. In view of the fact that the firm furnished no conclusive evidence as to the usefulness of the product and that the investigations of the A. M. A. Chemical Laboratory cast considerable doubt on the therapeutic value claimed for it, the Council was obliged to declare Glutamic Acid Hydrochloride-Calco unacceptable for New and Nonofficial Remedies. (J. A. M. A., May 1, 1937, p. 1506.)

# Miscellany

## DO YOU KNOW?

(A release of the Medical Society of the State of New York)

First influenza epidemic occurred in 1735. Other serious ones were in 1789, 1807, 1889, 1918.

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Greater New York's streets total in length approximately 3,000 miles.

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The American Indian never saw a cow until Columbus brought the first ones in 1493.

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Tonsils are made up of spongy tissue filled with small glandular cavities, which usually contain secretions and sometimes infectious material. When a tonsil is inflamed it becomes enlarged, and full of pus accumulations. The tonsil often appears normal—the infection may be deep down in the little cavities.

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Men who make a business of raising ostriches deny that they stick their heads in the sand.

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There are twice as many people over 40 years of age today as there were a generation ago. This is one of the reasons heart disease is increasing. Another is that other diseases are decreasing. Everybody will die of heart disease if he lives long enough.

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Without food a man can live for days, without water, for hours, without air, for minutes.

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Some of the greatest obstacles to concentration are not due to noises from without, but distractions from within. You want to be doing other things, you have hopes and worries you would rather think about. We speak of a well "integrated" personality as one in which the parts are formed into one whole, no part emotionally at war with another in the nature of the person. From the same root as "integrated" comes "integrity."

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A yellow fever epidemic struck New York in 1798, taking a toll of 16 out of 40 physicians, and 1,500 of the population of 50,000.

First strike took place in 1741, when bakers struck. Printers of Philadelphia walked out for $6.00 a week in 1786, and in 1796 three hundred shoemakers struck for higher wages.

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Originally men's coats had sleeve buttons on the front of the sleeve.

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A distinguished physician, Dr. James J. Walsh, once said that it is more important to know what kind of a person has the disease than what kind of a disease the person has.

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Different physicians, using the same medicines, both with the same skill and training, will get different results, because the factor of personality is so important in the healing art.

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The doctor must have knowledge, skill, experience, but more important than this, his most effectual implement is the patient's confidence.

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Each person will be handled differently by the conscientious physician. He must know how to interpret, from the sick person's description, just what the pain means, and where it is. Most people cannot describe pain, and often locate it indefinitely, and unless it happens to be acute when the doctor is present, he must make plenty of allowances for error, depending on his knowledge of the patient's personality, expressiveness, accuracy of observation, and ability to describe.

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The best treatment a patient gets is often what he gives himself, under the doctor's instructions. How much faith he has in his doctor will be shown in how well he obeys the doctor's instructions, which sometimes require the sick person to alter his way of life radically.

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First rocking chair is attributed to Benjamin Franklin who is reputed to have invented it in 1760.

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Humming birds cannot walk. The construction of their feet allows them to be used only for perching.

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Hindus do not welcome converts to their faith.

These are a few of the many reasons why compulsory health insurance has failed in Europe, where the number of patients coming to a doctor run as high as 60 or 100 per day. "A pat on the back, a stock prescription, and out the door." There is no time to get to know the patient, to observe him at ease, when worried, when angry. How to apply the art of medicine to the peculiar requirements of each patient requires that the doctor have plenty of time to give each person.

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Children vary a great deal in their ability to talk. At six or seven months, most children can recognize their own names. At fifteen or eighteen months they usually have a fair vocabulary of two-word sentences, and by the time they are three years old, they can talk connectedly. Much depends on the effort made to help the child. One child is not intellectually superior to another merely because he learns to talk earlier.

Francis Scott Key, who wrote the "Star Spangled Banner," could neither sing nor play a musical instrument.

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Interesting progress is made in lip-reading training for the hard of hearing, with surprising results. Children who would never have been able to take part in a general conversation if born a generation ago, today are enabled to "see" what is said almost as well as those with normal hearing.

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A learned judge was once asked why his opinions were so seldom reversed on appeal. "I make myself master," he replied, "of the facts in the case, and then I get the law from my wife." What he meant was that once the facts are clear, the rule of law was not difficult to find. When a man is sick, the first thing is to get the facts, all the facts. The next thing is the diagnosis, sometimes difficult. Last comes treatment—usually the simplest part of the entire process of healing.

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# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

Vol. 7, No. 2 | Montgomery, Alabama | August 1937


## SYPHILIS*


By
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United States Public Health Service Clinic
Hot Springs National Park
Arkansas


We are here this evening for a very definite purpose. It is my sincere hope that when this meeting disbands we shall all carry away with us a firm determination to perform our duty in a concerted conquest of Public Enemy No. 1. Public Enemy No. 1 is a disease, a loathsome disease known as syphilis.

The term *syphilis* is probably fancifully derived, according to tradition, from the Greek *syn* (not sin), meaning "with," and *philos*, meaning "loving." Whether this is absolutely correct or not is beside the point. This disease entity, which we call syphilis, is in our midst and has been for at least five centuries. There is some disagreement as to its exact origin among medical historians but we do have incontrovertible proof of its early existence.

It is recorded that it was of great antiquity in Haiti; and that when Columbus returned to Barcelona, in 1493, members of his crew joined the Army of Charles VIII of France which was at that time established in Naples, and this malady broke out soon after among great numbers of the troops. Upon the demobilization of this force in 1495 the disease spread over all of Europe and everywhere it went it was capped with a new name, because neither physician nor layman had ever seen anything like it before. During this first epidemic the course was very severe and acute death was frequent; but within 50 years the clinical picture had assumed very much its present appearance.[1] Because of its historical background, syphilis became generally known as the French disease, which is, of course, a misnomer and unfair to France, since it is actually a universal disease—universal in every sense of the word save one. It is not natural to dumb animals, although some are susceptible to artificial inoculation. In the human animal, however, it attacks all races and at all ages.

The first recorded case in North America occurred in Boston in 1646, twenty-six years after the landing of the Mayflower. Who will deny that this infant country, the United States, has made great strides since the founding of the colonies in the 17th century? We have made rapid progress in the past 300 years as far as independence, government, commerce and industry are concerned. Yes, in a general way, in medicine too. We have practically conquered those scourges smallpox, typhoid fever, plague, diphtheria, yellow fever, and many other communicable diseases. We are making steady progress against cancer and tuberculosis, in spite of our lack of knowledge of a specific cause in the case of the one and a specific curative drug in the case of the other.

But what have we done about syphilis, a disease in which we know the specific organism, the manner of its dissemination, and for which we have tests and a specific remedy? We have known definitely the causative organism of this disease, the spirocheta pallida, since 1905; we have had a specific test, the Wassermann, to detect latent as well as clinically active cases, since 1906; and we have had a rapid acting and specific drug, salvarsan, since 1910; all the necessary medical factors for the complete eradication of this plague. What have we done about this disease, the control of which appears to be and is so possible? I'll tell you what we have done.

In this country, where freedom of speech is jealously guarded as a coveted heritage, we have permitted fanatics of all kinds to

*Read before the Association's public meeting, Birmingham, April 21, 1937.

1. Beckham, Harry: Treatment in General Practice, 2nd edit.

denounce our Government, insult our intelligence and scandalize our children while we have sat placidly by and have seen real, worthwhile, vital information being suppressed. We have allowed this mad dog, syphilis, to fatten on prudery, behind a veil of secrecy until it has attained the proportions of a menacing monster. Since that first recorded case in Boston in 1646 the spirochete of syphilis has increased and multiplied and taken root until today there are approximately ten million cases of syphilis in the United States. Think of it, ten million cases of syphilis, almost a tenth of the population, one out of every ten adults! The fact that syphilis is a preventable disease makes this figure almost incredible, and, to say the least, shameful.

Figures alone, although factual, are rather cold. In order that we do not miss the significance of ten million cases of syphilis in a population of about 130 million people let us analyze the situation and ascertain what this means to you and to me and why we should be particularly concerned about it as long as we, ourselves, are not afflicted.

The public health menace is obvious. Although only about 5% of these ten million cases are definitely infectious it is this infectious group which perpetuates the chain of infectivity and spreads itself in ever widening coils. What would we do in the face of 500,000 cases of smallpox? Suffice it to say we would act and act promptly. We would make use of the knowledge we have acquired about the prevention of smallpox.

Besides the health menace there is an economic burden which we cannot ignore. As taxpayers and contributors to charity each of us bears a part of this load. Syphilis greatly lessens efficiency in all human endeavors and, if untreated, eventually completely incapacitates its victims in one way or another, physically, mentally, or both.

A very appropriate study has been recently conducted by Doctor McDaniel of Atlanta, Georgia, in which syphilitic and non-syphilitic persons were observed. During a six months' period, 6,911 applicants for relief rolls in Fulton County, Georgia, were physically examined. It was found by routine Wassermann tests that 1,311 or 18.9% had syphilis. It was also found that the greatest number with syphilis were in the age group between 20 and 40 years, the ages in which the physical power of man should be at its height. It was further found that 17% of the syphilitics in this group were not able to do competitive work and that 16% of the syphilitics passed 50 years were not able to work at all. Similar results would be obtained through similar studies anywhere in the United States.

Most of these physically disabled individuals must be supported by charity. Some may resort to crime. The records of our penitentiaries will bear out the statement that an appreciable number do resort to crime. It is estimated that there are 170 cases of syphilis per thousand in the prison population of the United States.

An additional economic burden is borne in the care of the insane. There are approximately 6,000 cases of general paralysis or insanity due to syphilis being treated in the state hospitals for mental diseases in this country. If these cases were evenly distributed throughout the forty-eight states, it would mean that the residents of Alabama would be supporting 125 syphilitic insane persons constantly. I have no idea what the per capita cost is in your state hospital at Tuscaloosa but I feel safe in saying that it is well over one dollar per day. Let us suppose that it is only one dollar per day. That means an annual expenditure of $45,625 for the syphilitic insane. It is probably actually three times that much.

What an abundance of treatment that would buy for your early cases of syphilis, by which you could break the chain of infectivity, prevent the incapacitating ravages of late syphilis, restore the individual to his self-supporting place in society, and reduce the incidence of the disease within controllable limits? Why spend our money on a lost cause? These people who are committed to the state mental hospitals are lost to society. They must be provided domiciliary care, however, until merciful death carries them on. Why not invest our money in securities that will pay dividends, in the cause of prevention? Nowhere is it more true that an ounce of prevention is worth a pound of cure. We can prevent the disabling after-effects of syphilis by early, adequate treatment. It has been estimated that $78 will adequately treat a case of early syphilis.

There is still another point with regard

to the dangers of syphilis worthy of our consideration, besides the contagion hazard and the economic responsibility. It is the hazard of bodily harm. Railroads and transportation companies are now aware of the dangers and when physical and laboratory examinations disclose the presence of syphilis in those employees to whom are entrusted the lives of millions for safe transportation they are immediately removed from their posts. There are no methods of control, however, which will prevent persons suffering from cardiovascular or neurosyphilis from speeding over our streets and highways in private conveyances. A heart attack or a momentary mental lapse at the wheel of a speeding automobile and the scene is set for an accident, with injury and possibly loss of life to innocent persons.

Public Enemy No. 1, a plague which is more widespread in its incidence, more disastrous in its end results, and more costly to the Nation than any ten other communicable diseases, does not confine itself to any outcast group of people. Rich and poor, young and old, white and colored, make up the incredible number of its victims.

Since syphilis and the other venereal diseases are generally acquired through sexual intercourse, it is obvious that there is at least one sure method of prevention. Syphilis can be avoided by continence except in that comparatively small per cent of cases which we describe as innocent infections. The virtue of chastity, however, is not universally practiced and I shall tell you more of the terrible consequences.

At the present time there are over 500,000 new cases of syphilis annually. There are at least 25 thousand fetal deaths due to syphilis in the United States each year. Thousands of congenital syphilitic infants die before their first birthday. In addition to these there are thousands of infants who do survive the first years of life, either due to treatment or because the disease, although present, is lying dormant. Later, unless adequate treatment subdues them, these sleeping germs will waken and become active to blind or otherwise maim for life, destroy their hosts, or perhaps only make them public charges.

These appalling figures do not tell the whole story. They do not describe the individual suffering and heartbreak. At the Public Health Service Clinic in Hot Springs we see every phase of this picture. The once rich, the poor, the old and young, white and colored apply at our doors. We have middle-aged men, who have held high positions, laid low in the prime of life by inadequately treated syphilis which was acquired in their youth. We have others who have never possessed enough of the world's goods for even a meagre livelihood. We have older patients, suffering the ravages of nervous and cardiovascular syphilis. We have young men and women on the threshold of adult life and we have helpless children.

The majority of our patients are in the age group 16 to 30 years. Some are young girls who have attempted to make their own way in the world and, because of lack of home training and care, unknowing or unmindful of the dangers of promiscuity, have become infected. There are others who, with the simple trust of a child, have married worthless, infectious husbands or worthy, but ignorant, infectious husbands and come to us with the consequences. Some are young mothers with syphilitic babes in their arms who come in desperation for what succor we can offer them, pleading that the pitiful, distorted little bodies of their babes be freed from the tentacles of this dread disease in which they had no part in acquiring. Some are expectant mothers, infected and deserted by their husbands, coming for the treatment that will save their unborn babies from the terrible taint of syphilis.

They have hitch-hiked to the clinic from the farthest corners of the United States. Ignorant? Yes, but I do not necessarily mean this contemptuously. I might better and more charitably say unfortunate. The truth had not been brought to them or they had learned the truth too late and then their frantic pleas for assistance may have fallen on deaf ears. They tell us they tried to get treatment at home but no one would help them. Most of them have scarcely sufficient of the world's goods to exist while in health. What can they do when illness bears them down?

Most pitiful of all are the children, innocent sufferers of one of the most dread diseases known to man. I could show you some mighty pathetic cases of familial sy-

philis. Have you ever seen syphilitic babies? They are pitiable, wizened, emaciated, sniffling little creatures, who already have the appearance of little old men and women with their drawn faces and wrinkled bodies.

I could show you older children, some crippled—unable to walk—others who came to us because their eyesight was beginning to fail. They did not know they had syphilis but a gray veil was beginning to form over their eyes, caused by a disease with which they came into the world. Unless they have treatment, complete blindness may result.

I could show you a little boy, now 10 years old, who has syphilis of the nervous system. This little fellow was first brought to our clinic 9½ years ago when he was six months old and he has been treated at intervals ever since to the limit of his tolerance. How this little fellow has been punished! Hundreds of needles pushed through his tender skin, hours of fever therapy in which his temperature has been raised to over 105 degrees! And yet not a whimper out of him. All because he was born with this awful affliction. *He* transgressed no moral law for which he deserves punishment. He has improved under treatment but this improvement is infinitely less important than the damage that has probably been prevented had he not been treated.

These little lives are just as dear to God, our Creator, as if they had perfectly formed, healthy bodies. Their innocent suffering should compel us to action in their behalf. From a common sense standpoint, if not a humane one, the welfare of their parents and that vast army of adults responsible for the spread of this disease should be the consideration of us all.

That's why this subject needs publicity. Everyone should know the prevalence and danger of syphilis to themselves and to others. They should know what can and must be done to overcome and prevent the further spread of this disease. It may be disgraceful to have a venereal disease but it is a thousand times more disgraceful to have it and do nothing about it because of shame.

People must know that the initial lesion of syphilis may vary in degree from a hideous ulcer to an innocent appearing abrasion. They must know that the primary sore and the secondary stage may be so slight that they may pass unnoticed. This is particularly true in women. Therein lies its insidiousness.

They must know that there is a laboratory test of the blood which will definitely tell whether or not syphilis is present, even though they have never had reason to suspect that they had been infected. They must understand the importance of this blood test in all physical examinations and especially in the case of pregnant women. It is not enough to make a blood test only on those who present clinical manifestations of the disease. It has been shown by actual study in Philadelphia hospitals that where blood tests were not a routine procedure in the care of pregnant women 72 cases of syphilis out of 73 were probably overlooked.

People must know that the earlier treatment is begun the surer are the chances of cure. They must know that half-hearted, spasmodic treatment will not cure syphilis; that under the most favorable conditions it requires 18 months to 2 years to cure the disease by continuous treatment. They must know that, if neglected, syphilis may eventually destroy vital organs, the heart, liver, eyes, spinal cord, or brain. It may produce insanity, transforming one of brilliant intellect into a groveling imbecile or a raving maniac.

They must know that children from an untreated syphilitic mother will be born with syphilis over 50% of the time. They must know that proper treatment of a syphilitic expectant mother will produce a non-syphilitic infant in 90% of the cases. What a contrast between these healthy babies and those pitiable syphilitic babies of the untreated mothers!

A syphilitic pregnant woman who begins proper antiluetic treatment before the fifth month of gestation will almost surely give birth to a healthy non-syphilitic child, but even if treatment is begun later than the fifth month it will be greatly rewarded in that the nauseating, open sores often seen on syphilitic infants will most probably be prevented and a good start will have been made on its ultimate cure. On the other hand if the syphilitic pregnant woman receives no antiluetic treatment she will almost surely deliver, if not a dead fetus, a congenital syphilitic infant.

If the medical profession could accom-

plish nothing else in the conquest of this disease than to reduce congenital or prenatal syphilis to a sad memory what a noble work it would be. But the field is open to much greater possibilities. Syphilis in all its forms can be wiped from the face of the earth and if we don't do our part in the attainment of this end we should hang our heads in shame; we are derelict in our duty, and false to our oath to Aesculapius.

I do not advocate nor believe in the advisability of socialized or state medicine but I do believe, and I'm sure you agree, that in the case of dangerous communicable diseases it is absolutely necessary that public health agencies, federal, state, or otherwise, provide the facilities and personnel for the treatment of that great mass of our people who cannot afford to pay private physician's fees. No great epidemic could ever be controlled without the intervention of these public health agencies.

Because of the chronicity of syphilis and the prolonged period of treatment, part-pay and free clinics are indispensable. In addition to these it is absolutely essential for its control to have specially trained personnel to investigate sources of infection and contacts and to bring all infected persons under treatment. I cannot stress the importance of this phase of the campaign too emphatically. It is so apparent that our efforts in stamping out syphilis would be futile if we were to confine our activities to the treatment of the effects, while the cause or source was left unmolested.

There must be, of course, close cooperation between the private physician and the public health agencies. Each should supplement the other. Physicians must report all cases to the health authorities, either by name, number, or in some other practicable way. If infectious or potentially infectious patients become delinquent in their treatment, they must be reported by name. Then, upon the authority of the law, which most states have but seldom enforce, the health officer may compel these delinquents to be treated until they are rendered safe from a public health standpoint.

Diagnostic laboratories must be available to private physicians in order that accurate diagnoses can be made. Since a diagnosis of syphilis entails such inordinate mental anguish as well as prolonged, expensive care, it is nothing short of an unpardonable crime to label an individual a syphilitic without conclusive evidence that he is syphilitic.

Our medical schools must lay more stress on the proper training of students in syphilology in order that when the young men and women obtain their medical degrees they will be competent to treat syphilis effectively. The private physician must be equipped with the knowledge and the facilities to treat his own patients as well as they could be treated in a clinic. Many patients who are financially able to pay for private treatment seek admission to part-pay or free clinics in the belief that they will receive more effective therapy. Unfortunately, this conviction is often well founded on fact. No doctor can definitely diagnose a case of syphilis by mere superficial inspection of the lesions and no doctor can cure syphilis with 5 or 6 injections of neoarsphenamine. Patients have learned all this from the literature which may now be found on every newsstand.

It behooves the doctor, then, to know and understand the modern methods of diagnosis and treatment of syphilis in order that he may discharge his individual duty effectively in this great conquest of Public Enemy No. 1. He must make use of the darkfield for diagnosis in suspected cases of early, primary syphilis while the blood is not yet positive in the serologic tests. He must keep those suspected cases in which the darkfield and blood tests are negative under observation and repeat the blood test at frequent intervals for at least 10 weeks before he dare assure them that they do not have syphilis. Again I say it is criminal negligence to release a patient in whom syphilis is suspected before the case is adequately observed. Too often have we seen the cruel consequences of this false sense of security. Too often have young people then gone out and married, later to have this insidious monster raise his head and wreak havoc in their homes. Too often have we seen erstwhile physically powerful men stumbling about with locomotor ataxia because a doctor had told them years ago that the sore they had was nothing to worry about. Too often have we seen invalids from syphilitic heart disease, bedridden because of neglect.

Once syphilis is diagnosed treatment must be begun immediately and be contin-

ued without interruption for at least fifteen months, more often 18 months or two years; understanding, of course, that in late latent syphilis treatment need not be continuous. A patient must not be pronounced clinically cured unless the spinal fluid also has been found to be normal.

Other nations, most notably the Scandinavian countries, have dealt with the venereal disease problem in a common sense way with the result that at the present time these diseases are under complete control there and are of but minor concern. Thank God a new day has dawned in our country and we are shaking off the lethargy of the night. We now talk openly of the venereal diseases and newspapers and magazines carry articles to enlighten our people on the subject. This is not to condone the venereally infected nor to minimize the error of their ways. It is to maneuver our adversary into the open where we can strike telling, effective blows.

To summarize then: We know the germ that causes the disease, we know how it is spread, we know how to detect it, we have the drugs to cure it. Our united efforts can and will annihilate Public Enemy No. 1.

## CARDIOVASCULAR SYPHILIS*

By
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Cardiovascular disease is the most frequent cause of death in the United States. Hypertensive and arteriosclerotic heart disease, rheumatic heart disease and syphilis are the most common causes of cardiovascular disease, in the order named. At the present time arteriosclerotic, hypertensive and rheumatic heart disease are not preventable. Syphilitic cardiovascular disease, however, is unquestionably preventable, in most instances. Inasmuch as syphilis is said to be the etiologic factor in 15 to 20 per cent of deaths from cardiovascular disease, the proper treatment of this infection in its early stages will certainly decrease the death rate from heart disease and the proper treatment of patients in whom cardiovascular syphilis has already developed will prolong their lives and usefulness.

*Presented to the Association in annual session, Birmingham, April 21, 1937.

The incidence of syphilis in the United States has been estimated at four per thousand population.[1] In other words there are 683,000 patients with syphilis in this country. The same estimate fixes the number of annual deaths in this country from cardiovascular syphilis at 40,000. Brunsgaard,[2] who examined 473 patients who had had untreated syphilis for 10 to 40 years, found that 10 per cent developed definite clinical evidence of cardiovascular syphilis. These statistics are in agreement with those of Turner,[3] who found that 10.1 per cent of 6,000 patients with late syphilis had evidence of cardiovascular involvement. Data published by pathologists place the incidence of involvement of the cardiovascular system in patients with late syphilis much higher than the clinical statistics. Langer, Guldberg and Warthin are quoted[4] as fixing syphilitic invasion of the cardiovascular system in from 55 to 86 per cent of all patients with syphilis who come to autopsy. Therefore it seems probable that of the 683,000 patients with syphilis in this country at least 340,000 have treponema pallida in their cardiovascular system and are candidates for clinical cardiovascular syphilis.

The fact that cardiovascular syphilis is preventable is emphasized by figures quoted by Moore.[5] He states that approximately 90 per cent of the patients with cardiovascular syphilis at the Johns Hopkins Clinic have never received any antisyphilitic therapy and that he has never known of a case of cardiovascular syphilis to develop in a patient who has received as many as 24 injections of arsphenamine for early syphilis. As further evidence of the preventability of cardiovascular syphilis, Moore quotes the statistics of the Cooperative Clinical Group which show that of 2,889 patients treated with arsphenamine for early syphilis, only 30 developed cardiovascular syphilis although some of these patients had received only small amounts of

1. Proceedings, Conference on Venereal Disease, U. S. P. H. S., 1936.
2. Brunsgaard, E.: Arch. f Derm. u. Syph. 157: 309, 1929.
3. Turner, T. B.: Bull. Johns Hopkins Hosp., 46: 159, 1930.
4. Venereal Disease Information, U. S. P. H. S., 4: 1, 1936.
5. Moore, J. E.: Modern Treatment of Syphilis, Baltimore. C. C. Thomas Co., 1933. Pages 282-283.

the drug. The Clinical Cooperative Group also studied the outcome of treatment of 1936 patients with latent syphilis (syphilis of at least 2 years duration). Cardiovascular syphilis developed in only 31 patients of this group. It is therefore evident that not only can cardiovascular syphilis be prevented in patients with early syphilis but also it can be prevented in a large number of patients in whom the infection has been present for many months.

For practical, and particularly for therapeutic purposes, cardiovascular syphilis should be divided into several groups. The most satisfactory classification is that made by Moore[6] and used by the Cooperative Clinical Group:[7]

1. Uncomplicated syphilitic aortitis;
2. Aortic regurgitation;
3. Aortitis with saccular aneurysm;
4. Syphilitic myocarditis.

The Cooperative Clinical Group studied 6,253 patients with late or latent syphilis. Of this group there were 619 "detectable" cardiovascular syphilis. The distribution of this group was as follows:

Uncomplicated syphilitic aortitis—307 cases or 4.9 per cent;

Aortic regurgitation—257 cases or 4.1 per cent;*

Aortitis with saccular aneurysm—73 cases or 1.2 per cent;

Syphilitic myocarditis—53 cases or 0.9 per cent.

### PATHOLOGY OF CARDIOVASCULAR SYPHILIS

A brief but satisfactory description of the pathology of cardiovascular syphilis is given by Weber.[10]

"Syphilitic aortitis is the result of the destruction of the media of the aorta. The lesion, which is an obliterative endarteritis of the vasa vasorum, usually begins a short distance above the aortic valve and ends abruptly in the upper part of the thoracic aorta. The impairment of the blood supply brought on by the obliterative endarteritis of those vasa vasorum which penetrate the muscular coat of the aorta leads to nutritional disturbance of the media and of the intima, above it. The intima becomes pale and wrinkled, and the aortic wall becomes weakened, losing its elasticity and stretching under the pressure from the blood stream, so that the aorta begins to dilate and sometimes forms an aneurysm. The inflammatory process widens the commissures by causing adhesion of the cusps to the aortic wall and, in this manner, the cusps are separated and regurgitation ensues. On gross inspection, the valve has the appearance of a cordlike thickening of the free margins of the cusps separating at their attachments to the aorta."

Typical syphilitic degenerative changes in the myocardium have been described. Small gummata have been reported.[12] Syphilitic involvement of the previously undamaged mitral valve is reported[9] as an extension of the process in the endocardium from the aortic valves.

### DIAGNOSIS OF UNCOMPLICATED SYPHILITIC AORTITIS

This form of cardiovascular syphilis presents more difficulties in clinical diagnosis than any of the other groups mentioned above. In a known syphilitic who has no evidence of rheumatic, arteriosclerotic or hypertensive heart disease or of aortic regurgitation the following criteria given by the Cooperative Clinical Group are of definite aid in the detection of uncomplicated syphilitic aortitis:

1. Teleoroentgenographic and fluoroscopic evidence of aortic dilatation;
2. A tympanitic, bell-like, tambour accentuation of the aortic second sound;
3. A history of circulatory embarrassment;
4. Increased retromanubrial dullness;
5. Progressive cardiac failure;
6. Substernal pain;
7. Paroxysmal dyspnea.

None of these findings may be considered as pathognomonic but all or any are strong indication for exhaustive investiga-

6. Ibid., 279.
7. Venereal Disease Information, U. S. P. H. S., 4: 2, 1936.

*Staemmler[8] has reported one case of syphilitic involvement of the mitral valve and Blackman[9] has reported two similar cases.

8. Staemmler: Contrlbl. f. all gem. Path. u Path. Anat. 48: 177, 1930.
9. Blackman, S. S., Jr.: Bull. Johns Hopkins Hosp. 57: 111-121 (Sept.) '35.
10. Weber, M. L.: M. Bull. Vet. Admin. 12:228-240.
11. Venereal Disease Information, U. S. P. H. S., 17: 4-5, 1936.

tion of the patient's cardiovascular condition and the final diagnosis should depend upon the physician's careful evaluation of the patient's symptoms and signs. Emphasis should be placed on the fact that negative physical x-ray findings of the cardiovascular stripe do not rule out the existence of early syphilitic aortitis. On the other hand positive physical and x-ray findings may precede symptoms.

### SYPHILITIC AORTIC REGURGITATION

This form of cardiovascular syphilis is, of course, much more grave than that of aortitis. Fortunately its detection is relatively easy and in most instances depends merely upon a careful physical examination. Certain of the physical signs are present, usually before the patient presents symptoms of circulatory embarrassment. This fact emphasizes the importance of careful examination of patients before relegating them to the category of "latent syphilis." The physical findings of aortic regurgitation are familiar to all second-year medical students and will therefore not be discussed here. The early soft cooing diastolic murmur of aortic regurgitation, however, may be only faintly audible. This murmur may be the only sign of aortic disease and careful auscultation along both sternal borders may be the means of early diagnosis of a condition which proper treatment may arrest and allow the patient to have many more years of life. Failure to detect this early sign may be the cause of the administration of improper treatment with resulting fatal Herxheimer reaction or therapeutic paradox.

### SYPHILITIC AORTITIS WITH ANEURYSM

Like aortic regurgitation, the diagnosis of a moderately advanced aneurysm of the thoracic aorta is relatively simple, provided careful physical and x-ray examinations are made. This is particularly true of the sacculated aneurysm. X-ray examination will reveal evidences of fusiform aneurysm even when physical signs are inconclusive. Both fluoroscopic and teleoroentgenographic studies of such patients should be carried out.

### SYPHILITIC MYOCARDITIS

The question as to the existence of a true syphilitic myocarditis has been and still is the subject of much discussion. Warthin[12] reports that 65.5 per cent of his autopsies on patients with late syphilis show syphilitic myocarditis. Clinically, however, this condition is rare but does exist. Its diagnosis is made chiefly by exclusion and should not be considered as final until other causes of heart disease are carefully ruled out. Myocardial damage secondary to endocardial and arteriosclerotic changes and hypertension should not be considered as syphilitic in origin. Electrocardiographic changes should not be considered diagnostic unless other causes for their presence be excluded. Syphilitic myocarditis is probable in a patient who has syphilis and rapid progressive circulatory failure without other demonstrable cause of heart disease.

### GENERAL CONSIDERATIONS IN THE TREATMENT OF CARDIOVASCULAR SYPHILIS

The patient with cardiovascular syphilis should be treated as an individual with heart disease and not as "another case of syphilis." In this form of syphilis, antisyphilitic therapy is truly a two-edged sword. Proper treatment of the patient may diminish this suffering, prolong his life and economic usefulness while improper treatment may fail to give relief or even terminate life abruptly. No attempt should be made to make the patient fit a plan but the plan of treatment should be made to fit the individual patient.

A considerable number of patients with cardiovascular syphilis also have other forms of syphilis, particularly central nervous system involvement. For this reason the exact status and extent of the patient's syphilis should be determined before antisyphilitic therapy is instituted. (Likewise before treatment for central nervous system syphilis is begun, the patient's cardiovascular status should be established.)

All drugs used in the treatment for syphilis are potentially dangerous, even to the patient without cardiovascular damage. They are particularly dangerous to patients with circulatory embarrassment. The safest rule to follow is never to give antisyphilitic treatment to a patient who has exhibited any signs of cardiac decompensation within three months. Cardiac failure should be treated as cardiac failure

12. Warthin, A. S.: South. M. J. 24: 273-278, 1931.

and the presence of syphilis should be ignored until compensation has been established for at least this length of time. Failure to follow this precaution may easily result in death of the patient from treatment reaction.

Moore[13] advises certain principles of treatment of cardiovascular syphilis. These are:

*General Medical Care*

1. Rest;
2. Restriction of physical activity;
3. Digitalis when needed;
4. Nitroglycerin and theobromine derivatives for pain.

*Specific Treatment*

1. Avoid immediate grave treatment reactions—ventricular fibrillation. Do not use arsphenamine (606) in any dosage.
2. Avoid even minor treatment reactions if possible. Use neoarsphenamine or bismarsen in small doses.
3. Avoid therapeutic shock—the Herxheimer reaction. Begin treatment with heavy metals—bismuth or mercury—and the iodides.
4. Avoid the therapeutic paradox. Continue preparatory heavy metal treatment for 8-12 weeks before attempting arsenicals.
5. Make treatment prolonged—minimum 2 years—and continuous.

Careful observance of these principles will assure that the patient will not be harmed and that the optimum results will be obtained.

### SPECIFIC TREATMENT FOR CARDIOVASCULAR SYPHILIS

The United States Public Health Service with its Advisory Committee* is making a laudable effort for the standardization of the treatment for the various forms of syphilis.

13. Moore, J. E.: Modern Treatment of Syphilis, Baltimore. C. C. Thomas Co., 1933. Page 284.

*R. A. Vonderlehr, Assistant Surgeon General, United States Public Health Service, Chairman; Herman N. Bundesen, M. D., Chicago, Ill.; Joseph Earle Moore, M. D., Baltimore, Md.; N. A. Nelson, M. D., Boston, Mass.; P. S. Pelouze, M. D., Philadelphia, Pa.; William F. Snow, M. D., New York, N. Y.; John H. Stokes, M. D., Philadelphia. Pa.; U. J. Wile, M. D., Ann Arbor, Mich.; and Lida J. Usilton, M. D., statistician, United States Public Health Service.

This committee is composed of the leading syphilologists in the United States. Most of them are in charge of large syphilis clinics where accurate observations are made. Consequently their combined data and experience make them more than qualified to suggest plans of treatment for all manifestations of treatment. While this group strongly urges standardized treatment for syphilis, they also emphasize the necessity for individualization of the patient. The following plans of treatment are suggested by this group.

### TREATMENT OF UNCOMPLICATED SYPHILITIC AORTITIS

"The average case of uncomplicated syphilitic aortitis should have a preliminary course of treatment with either soluble or insoluble heavy metal injections over a period of two or three months. Potassium iodide may be given by mouth at the same time. Following this, a cautious institution of arsenical therapy in small doses may be tried. When the patient stands this therapy without any untoward effects, the practice in the clinics consists in the use of alternate courses of an arsenical and a heavy metal. The extent to which this type of therapy should be carried out depends upon the patient's condition at the time he is first seen and upon his reaction to treatment. Rest may be an absolute indication for a time and restriction of physical activity for a period may be required. Decompensation must be avoided at all costs. Naturally, such cases even after specific therapy is discontinued should be kept under close observation throughout life."

### TREATMENT OF SYPHILITIC AORTIC REGURGITATION

"If aortic regurgitation is already established, the physician must govern his procedure by the condition of the heart. If the patient shows dyspnea on effort or cyanosis, he should be placed in bed for a period of a month or more and careful treatment for syphilis begun. All risks of reaction to treatment, even a severe gastric upset, must be avoided. An intramuscular injection of either a water-soluble bismuth or mercury compound may be given every other day or an insoluble salt weekly for a period of 8 to

14. Venereal Disease Information, U. S. P. H. S., 17: 13-14, 1936.

15. Ibid., 21.

10 weeks, potassium iodide being given by mouth at the same time. If the patient seems to respond to this treatment, it may then be possible to start arsenical treatment very cautiously in the form of neoarsphenamine, to avoid a "therapeutic paradox" or a Herxheimer reaction. At the first sign of intolerance or of decompensation arsenical treatment should be stopped. The first dose of neoarsphenamine should be 0.05 gm. or 0.1 gm. and dosage should be very gradually increased to 0.3 gm. or 0.45 gm. maximum giving injections weekly for a course of 12 doses. This course of arsenical may then be followed with 10 to 12 weekly injections of an insoluble bismuth salt, such as bismuth salicylate, or of a water-soluble salt suspension in oil, e. g., sodium potassium bismuth tartrate, 0.1 gm., or of a liposoluble preparation. If the patient stands treatment well, alternating courses of neoarsphenamine and bismuth may be continued for some time. Naturally, such a patient must be kept under close observation as there is danger at all times of a cardiac breakdown. His activity must be restricted and with evidence of cardiac failure prompt treatment must be given. Certain cases will be unable to stand any arsenicals and the attending physician will be forced to depend on bismuth injections or mercury inunctions and potassium iodide."

### TREATMENT OF SACCULATED ANEURYSM

"With the diagnosis of aneurysm established, the physician must be governed by the conditions found. If there is evidence of decompensation the patient should be put at rest. If there is an accompanying edema, it may be well to employ a heavy metal diuretic like salyrgan or merbaphen, though the specific action of these preparations is questionable. After all, such soluble mercurials as succinimide or biniodide have a definite diuretic action—the same is also true of certain water-soluble bismuth salts.

As far as specific therapy is concerned, the physician should exercise every care to prevent both the "therapeutic paradox" and the Herxheimer reaction. Treatment should be started cautiously with a heavy metal (bismuth or mercury) in the form of either a water-soluble or insoluble salt, for a period of 8 to 10 weeks. Potassium iodide may accompany this therapy. Then the patient may be started very cautiously on arsenical therapy, either neoarsphenamine or an arsenical preparation for intramuscular use, with neoarsphenamine, using as a maximum dose not more than 0.9 gm., possibly starting with a dose of 0.025 gm. or 0.05 gm. Neoarsphenamine is usually used in a course of 10 to 12 injections. Alternating between the succeeding courses of neoarsphenamine an insoluble bismuth salt such as bismuth salicylate 0.1 gm. may be used or a soluble salt suspended in oil, e. g., potassium sodium bismuth tartrate or potassium bismuth tartrate, 0.1 gm. or a liposoluble salt. Throughout all strenuous exercise must be avoided and likewise all treatment reactions. After that, much will depend on symptoms and response to treatment. Such a patient should be followed and examined physically, and with x-rays every 6 months or every year throughout life."

16. Ibid., 27-28.

### TREATMENT OF SYPHILITIC MYOCARDITIS

The rarity of this form of cardiovascular syphilis and the difficulty of its diagnosis make statistics meager and unreliable. The majority of these patients are decompensated when first seen and their prognosis is extremely poor. In view of these facts it is unusual for such a patient to regain enough physical well-being to be allowed to have any specific treatment.

## CONCLUSIONS

1. The incidence of cardiovascular syphilis in the United States is high.

2. Cardiovascular syphilis is preventable by early diagnosis and adequate treatment for early syphilis.

3. The patient with cardiovascular syphilis should be treated as an individual. This treatment depends upon the patient's entire physical condition.

4. Presence of cardiac insufficiency is a distinct contraindication to antisyphilitic treatment.

5. No patient should receive any antisyphilitic treatment until cardiac compensation has been established for at least three months.

6. Adequate general and specific treatment of patients with cardiovascular syphilis will diminish symptoms and prolong life in most instances.

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# DIAGNOSIS OF EARLY SYPHILIS*

## DARKFIELD EXAMINATIONS BY THE CAPILLARY TUBE METHOD

By
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The ideal time to diagnose syphilis is during the chancre stage, before the blood Wassermann becomes positive. Continuous treatment of the proper type, administered for eighteen months during this stage, results in permanent cures in better than ninety-five per cent of the cases. A wait of a few weeks until the blood Wassermann becomes positive decreases this optimum by fifteen to twenty per cent.

Regardless of how competent or conscientious the technician performing the darkfield examination or how expensive the equipment employed, he can not compete with careless and improperly collected specimens. The result of the examination can not exceed the care exercised in the collection of the serum. It is very important that specimens for darkfield examination be properly collected, in order that the test may be of value to both the physician and the patient.

All lesions of the external genitalia should be considered syphilitic until proven otherwise, regardless of the moral, intellectual, social or financial standing of the patient. If this is remembered, syphilis will be found frequently where it is felt it is impossible for it to exist. The darkfield examination may be negative where healing powders, salves, ointments and soaks have been applied, because the majority of these agents contain mercury. A negative test, whether medication has or has not been employed, is not evidence that the lesion is not syphilitic, but that the laboratory failed to find the *spirocheta pallida*, the causative organism of syphilis. If any form of medication has been applied to the ulcer, it should be discontinued and saline soaks employed, and the patient instructed to refrain from all forms of treatment while serum is being collected for the darkfield examination. Specimens should be collected every day, or every second day, until a positive report is obtained, or until three or four negative examinations have been completed. A blood Wassermann should be taken at the first examination. If positive, it may be the result of a previous infection, or of the present lesion. With the more highly sensitive tests of today, frequently a positive darkfield and Wassermann are obtained at the same time. If all the darkfield examinations are negative, the lesion should be treated as a chancroid, the Wassermann being repeated at weekly intervals for four weeks, every second week for four weeks, and once a month for three months. This makes a total observation period of five months before the patient is informed that he does not have syphilis and discharged. At times, several weeks may elapse before the blood Wassermann becomes positive.

In collecting the specimens, the physician must be very careful that he does not infect himself through a small abrasion of the skin. Gloves should be worn during the collection of the serum, and the hands scrubbed well with soap and water, and soaked in mercury solution following the completion of the examination.

### THE TECHNIQUE OF COLLECTING THE SPECIMEN

The ulcer is grasped between the thumb and the forefinger, and the pus, mucus and necrotic tissue gently but firmly removed with an applicator or gauze. The ulcer is then squeezed and an attempt made to collect serum that is free of blood. If the serum contains a large amount of blood, it makes a very unsatisfactory specimen for examination. If it bleeds freely, the lesion should be wiped off and a second specimen collected, grasping the ulcer near the edges. The closer the fingers are to the edge of the ulcer the less bleeding will occur. The expressed serum is allowed to flow up, or is aspirated into the capillary tube. More than one tube should always be collected. Carefully seal each end of the tube by thrusting it into the vial of wax. The wax should extend at least one-fourth of an inch up the lumen of the tube. The tubes are forwarded at once to the laboratory. If distance makes it impossible to report the result of the examination in twenty-four hours, a second specimen should be collected and mailed while waiting for the report of the first.

The State Laboratories wish to cooperate in every way possible to make the early di-

*From Department of Syphilis, Hillman Hospital.

agnosis of syphilis practical, and accessible to all physicians, but this can not be done without the cooperation of the medical profession, and the careful collection of specimens. A trial of this procedure over a period of thirty days in the syphilis clinic at the Hillman Hospital has demonstrated that it is practical and reliable.

During the thirty-day period, twenty specimens were collected and forwarded to the laboratory of the Jefferson County Health Department. These specimens were examined from one to six days following their collection, and the results checked against darkfield examinations, and blood Wassermanns done at the time the specimens were collected. The serum was collected by different physicians not especially trained in darkfield examinations, in order that the test might be observed under conditions similar to those encountered in private practice. The training and experience of the physician collecting the serum for the darkfeld will be reflected in accuracy of the results obtained. The greater his experience, and the more care he exercises in collecting the specimens, the fewer will be the errors made by the laboratory.

Twenty darkfield examinations were done on twelve patients. Positive darkfields were obtained on seven of the cases and confirmed by a four-plus Kline and Wassermann-Kolmer taken at the time of the darkfield. In two cases a four-plus Kline and Wassermann-Kolmer were obtained, the darkfield being negative, but in no instance was a positive darkfield obtained that was not accompanied by a positive blood report. The duration of the lesions varied from six days to three months. The majority of the patients being colored, their statement as to the duration of a lesion is notoriously unreliable. This part of the report can well be disregarded. A positive darkfield and blood Wassermann were obtained in one case that insisted that the lesion had been present for three months, while a positive darkfield and blood Wassermann were obtained in another patient who insisted that the lesion had been present for only five days.

The majority of the group had applied some form of medication, but in most instances the drug used could not be determined, other than that it was a powder, salve or liquid. It was usually furnished by a friend who had employed it under similar circumstances.

The series is too small to be taken as final proof of the efficiency of the method. Of the twelve cases studied, darkfield examinations were done until three or four negative reports were obtained or until a positive darkfield or blood Wassermann was reported. The clinic laboratory reported three positive darkfields from the twelve cases. The city laboratory reported three positive darkfields, and three with typical non-motile spirochetes. The clinic laboratory reports non-motile spirochetes as negative. When this is taken into consideration the results check. Each laboratory reported as negative a proven positive case. A four-plus blood Wassermann confirmed the diagnosis in the four cases with typical motile spirochetes, and in the three cases with typical non-motile spirochetes.

TABLE 1

SUMMARY OF THE FINDINGS IN EACH CASE

| No. Case | Darkfield Clinic Lab. | Darkfield Health Lab. | Kline | Wassermann & Kolmer | Duration of Lesion |
|---|---|---|---|---|---|
| 1. | Negative | Negative | Neg. | Negative | 6 weeks |
| 2. | Negative | Non-Motile | 4 plus | 4 plus | ? |
| 3. | Negative | Non-Motile | 4 plus | 4 plus | 1 week |
| 4. | Negative | Negative | 4 plus | 4 plus | 6 weeks |
| 5. | Positive | Positive | 4 plus | 4 plus | 3 weeks |
| 6. | Positive | Negative | 4 plus | 4 plus | ? |
| 7. | Negative | Negative | Neg. | Negative | 2 weeks |
| 8. | Negative | Non-Motile | 4 plus | 4 plus | 1 week |
| 9. | Negative | Positive | 4 plus | 4 plus | 5 days |
| 10. | Negative | Negative | Neg. | Neg. | 1 week |
| 11. | Negative | Negative | 4 plus | 4 plus | ? |
| 12. | Positive | Positive | 4 plus | 4 plus | 3 months |

From this small group of cases it is felt that typical non-motile spirochetes, if reported a second time, should be taken as positive evidence of a syphilitic infection. The findings also point to the value of a blood Wassermann at the first visit. All positive darkfields were accompanied by a positive blood Wassermann, and in two instances of negative darkfield examinations the blood Wassermann was positive. Where darkfield facilities are available they should

be employed in preference to the capillary tube method, but where not available this method will give satisfactory results.

Medical Arts Building.

## THE MODERN ROLE OF PERORAL ENDOSCOPY

By
E. R. NODINE, M. D.,
Atmore, Ala.

Not so many years ago, bronchoscopy and esophagoscopy were considered as only life saving measures used as a last resort in cases of foreign bodies in the food and air passages. Today, however, these means are used in many diagnostic and therapeutic measures heretofore unthought of.

The purpose of this brief paper is to enter a plea for more extensive use of peroral endoscopy in the diagnosis and treatment of certain conditions which will be pointed out as amenable to the use of these manipulations.

First, let us dispel a common idea that they are formidable and painful ordeals for the patient. As a matter of fact, in the hands of a skilled operator, the procedures are quite harmless and painless, and there are few contraindications. As Jackson asks: "Is it safe to take out a foreign body while the patient has pneumonia?" In not one out of hundreds of these cases has the patient had a pneumonia; all were misinterpretation of the physical signs.

Probably the most important advance along these lines has been in the field of direct laryngoscopy. With this instrument we have the great advantage of a complete view of all the structures of the larynx not obtainable by mirror examination. The only way the anterior commissure can be seen is with the Jackson instrument devised for this purpose. The importance of seeing this structure is the fact that it is at times the seat of early carcinoma which is not visible by mirror. Thus, early biopsies of neoplasms of the larynx may be obtained and early treatment instituted in a structure that responds most readily to immediate treatment of malignancy. In the case of tuberculosis of the larynx the treatment, par excellence, is cauterization in selected individuals, a performance which can only be properly executed via the laryngoscope.

Following on down into the trachea and bronchi, many conditions obscure to x-ray may be revealed by bronchoscopy. Endobronchial malignancies may be biopsied by this means and radium directly applied. Bronchiectatic areas and lung abscess may be treated and aspirated, and at times autogenous vaccines made of the material.

In the field of asthma, bronchoscopy has played an important part. Wolfson and Golden have shown that, in chronic unexplained cough, a great deal of information can be obtained by the aid of the bronchoscope. In a series of 25 cases all secretion was aspirated and the bronchi were injected with lipiodol. In this group of 25 cases, 25 had productive cough, three had productive cough associated with bronchial asthma, and two had cough without sputum. In 21 of the 25 cases, various changes were visible through the bronchoscope and treatment was instituted.

With the esophagoscope one can biopsy and treat neoplasms in the esophagus at an early stage. Strictures and cardiospasms are also amenable to this treatment.

In closing, we wish to say a word about foreign bodies. There are many of these not detectable by x-ray, such as slivers of bone and glass objects. All patients in whom symptoms of foreign bodies persist, in spite of negative x-rays, should be examined perorally, since the risk is nil compared to the destruction caused by a remaining foreign substance.

### REFERENCES

1. Jackson: Bronchoscopy and Esophagoscopy, 3: 190.

2. Wolfson, L. E. and Golden, L. A.: A Study of Cough with the Aid of the Bronchoscope, Ann. Otol. Rhin. & Laryng. 42: 1122, 1933.

**Breast Tumors**—It is not of vital importance to make a differential diagnosis between various benign tumors of the breast, because those which have a serious bearing are very rare, and those which are not serious are easily disposed of by simple excision, thus eliminating any potential tendency to malignancy.

Few surgeons and still fewer physicians ever see a sufficient number of early cancers of the breast to become familiar with the diagnostic signs which may permit differentiation from benign disease. This may, in some measure, account for the popularity of biopsies, even to the dangerous practice of cutting out a section to be sent to some distant laboratory, entailing delay of several days after opening capillary vessels and lymph chains of the tumor before removal of the entire breast. This practice is exceedingly dangerous and unfair to the patient.—*Scott, Texas State J. Med., July* '37.

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue ..... Montgomery, Ala.

Subscription Price ..... $3.00 Per Year

August 1937

## DRUGS USED IN THE ERADICATION OF HOOKWORM

"Since hookworms rarely kill directly there is no justification for putting efficiency of anthelmintics before their safety." This is the very sensible view taken by Lane[1] in his discussion of this infestation which literally girdles the globe. The British investigator is said to be the only distinguished advocate of thymol as the drug of choice today. As proof of his contention he cites Howard as reporting a million thymol-treated cases in the United States with no death when instructions had been carried out, Ashford as reporting 1,600,000 cases in Porto Rico with no death. "My own 60,000 administrations without anxiety are relatively unimportant. These facts are insufficiently weighed by those who dub my conclusions as old-fashioned and reactionary. There is still that prejudice for the new which struck Paul of Tarsus in the Athenians some 1,900 years ago; there is also that preference for proof among careful physicians with patients' lives in their hands. It is apt to produce 'drunkenness' in a dose well below the fatal one."

Lane is inclined to think well of tetrachlorethylene, but regards the information yet assembled in regard to this drug as being insufficient. The conclusions of this noted investigator are, in part, as follows —"The evidence for the safety of thymol is more solid than for any other drugs, so the objection to deworming by it is poorly based . . . Tetrachlorethylene merits controlled tests on a proper scale. The cheapness of betanaphthol is no balance to its risks. Oil of chenopodium must not be given without knowledge of its ascaridole content, seeing how near together are the optimum and minimum lethal doses; its production of deafness is not negligible. Carbon tetrachloride is liable to be either highly extolled or dropped when it kills; to look before giving it for the factors known to make for deadliness is constantly neglected; with oil of chenopodium it lies under grave suspicion of ruining health and causing death in South America with simulation of yellow fever. Hexylresorcinol 'also ran,' not having fulfilled the expectation of its introducers."

"There is urgent need for the carrying through by experienced medical men of controlled comparative tests on an adequate scale to determine on the only stable basis —deworming—what anthelmintic is the safest and most effective in the expulsion of hookworm. Such knowledge is long overdue."

On the other hand, Faust,[2] who like Lane has had great experience with tropical parasites in various parts of the world, thinks very highly of tetrachlorethylene. According to him "it has a cure rate of about 90 per cent for hookworms, especially *Necator americanus* . . . Although it may produce transient giddiness and drowsiness, no deaths have been reported after its use in more than 100,000 cases of hookworm infection."

The distinguished American parasitologist further states that "oil of chenopodium is very potent for both hookworm infection and ascariasis, and carbon tetrachloride for hookworm and tapeworm infections, but both drugs are highly toxic and are frequently contraindicated." And he concludes by holding that "no anthelmintic is completely nontoxic for the patient in therapeutic doses. Certain drugs are more efficient and at the same time less toxic than others. Before prescribing anthelmintic

1. Lane, Clayton: What Drug Best Kills Hookworms? Am. J. of Digest. Dis. & Nutrition, 111-770 (Dec.) 1936.

2. Faust, Ernest Carroll: The Use of Anthelmintics, J. A. M. A. 108: 386 (Jan. 30) 1937.

treatment the physician should be sure of his diagnosis, should be familiar with the several aspects of the infection and should have clearly in mind the relative efficiency and toxicities of the anthelmintics available for use."

It is always difficult for the progressive and conscientious practitioner whenever eminent authorities take opposite sides on a given subject. He can but read the conflicting reports and endeavor to make for his patients the best choice possible. The average practicing physician does not treat a sufficient number of cases of hookworm infestation to enable him to have very strong opinions relative to the various drugs used in its eradication. But it behooves him, as the one responsible for the welfare of his patients, to bear in mind the dangers inherent, in varying degree, in all anthelmintics.

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## ANALGESIA IN LABOR

"In reviewing the intrapartum deaths from which these statistics were drawn, one is impressed with the fact that the accoucher seemed often so bent on getting his patient asleep or her baby delivered that he gave little thought to the outcome of his hasty procedures. When the birth of the child was accomplished he was abruptly confronted with the results. The lacerations gaped, the uterus relaxed, the patient's blood began to flow. The analgesic agent that gave such profound rest narcotized the baby; the material that was to bring the mother forgetfulness of her experience combined with third-stage bleeding to produce obstetric shock; the anesthetic that made operative delivery convenient relaxed the uterus and caused postpartum hemorrhage. The situation called for real generalship and, unless it was forthcoming, fatality followed.

"Thus does the seamy side of obstetric analgesia present itself. He who employs such methods of deep amnesia and deep analgesia will have it to face and must be prepared to cope with the emergencies it produces. The advocates of certain drugs will complain that the description is overdrawn, yet it is the precise story that appears again and again in the case histories."

The above paragraphs are from the recently published inquiry of Montgomery[1] into the part played by analgesics in maternal mortality in Philadelphia during the years 1931-1935, inclusive. His conclusions, in part, are as follows: "Analysis of maternal deaths in Philadelphia for a five-year period reveals an improvement in all forms of obstetric practice except that which has to do with the intrapartum period.

"The physicians' share in responsibility for sudden fatality in and after labor has increased a hundred per cent" and the author believes that, while a number of matters may be at fault, obstetric amnesia, analgesia and anesthesia are the factors chiefly responsible for this distressing state of affairs.

The investigator goes on to consider the various drugs and methods so used. Ether, he states, appears to be still the most widely used and possibly the safest of anesthetic agents in obstetric practice and that its administration is singularly free from untoward reaction and idiosyncrasy.

"Nitrous oxide and oxygen anesthesia is expensive. Since the apparatus for its administration is rather cumbersome and the services of a trained anesthetist are essential, the method is confined largely to hospital practice, where it occupies an important position." The Gwathmey method, the rectal injection of an ether-oil mixture, is not so popular as it was some years ago, but is held still to occupy a place of importance in the obstetric armamentarium. The writer is afraid of chloroform, but admits that he has employed it so few times that he knows little about it. In regard to spinal anesthesia, we are informed of its deficiencies in no uncertain terms. "It is the concensus of enlightened medical opinion that spinal anesthesia is a dangerous anesthetic in obstetric practice. It depresses blood pressure when blood pressure is already low, it relaxes the vascular tree when the latter is already relaxed, it impairs respiration when a normal respiratory excursion and complete oxygenation of the blood are essential. . .

"I can see no reason why one should select spinal anesthesia for an obstetric oper-

1. Montgomery, Thaddeus L.: Obstetric amnesia, analgesia and anesthesia: Their relationship to sudden death in labor, J. A. M. A. 108: 1679 (May 15) 1937.

ation, particularly if one has reviewed the literature on the subject and is familiar with the fearful mortality connected with it."

We are told that "local anesthesia has no detrimental effect on the constitution of the patient or the mechanism of labor. It is the least depressing of all methods and should occupy a more extensive place in obstetric practice than it does at present." Unfortunately local anesthesia is beyond the ken of many competent and conscientious physicians.

Montgomery is convinced that the present-day routine administration of barbiturates does much more harm than good and he believes that the extent of the harmful effects of these new drugs is not fully realized by the profession generally. In a number of the cases that he investigated barbiturates were given and "all the patients succumbed with a peculiar type of cyanosis and respiratory depression, rapid thready pulse and shock without hemorrhage that failed to react to the usual methods of treatment." It is his opinion also that a number of deaths ascribed to heart failure or pulmonary embolism were in reality brought about by various barbiturates. Montgomery also tells us excessive use of barbiturates causes a much higher rate of operative intervention, that forceps delivery becomes essential in from 40 to 60 per cent of cases. And he asserts that "it is doubtful whether the barbiturate derivatives will replace morphine, for there is no drug that is more quieting, more restful and more efficacious than the latter in long labor."

It is only human for women to crave freedom from the pains of childbirth. And it is natural for the physicians whom they consult to seek to alleviate their suffering. But it is incumbent upon the obstetricians to heed the warnings of Montgomery and others and to explain to the expectant mothers that excessive drugging is not without danger to both mother and child.

A brief and excellent resume of this difficult situation is found in Montgomery's closing paragraph—"With these assurances in mind and with confidence in her physician, the normal patient will approach her time of delivery with equanimity, accept a moderate and safe degree of analgesia, be comforted by the watchful attendance of her physician, and pass through her delivery in better condition than the mother who is drugged to an unconscious state and whose labor becomes a blank chapter in her life."

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## TAXING PROVISIONS OF THE SOCIAL SECURITY ACT RELATING TO THE PROFESSION

The Secretary of the Association has been asked to call attention to the following information promulgated by the Commissioner of Internal Revenue:

Operators of private laboratories, private sanitariums, and physicians employing one or more were advised today by Commissioner of Internal Revenue Guy T. Helvering to make immediate tax returns as required under the provisions of Titles VIII and IX of the Social Security Act to avoid further payment of drastic penalties which are now accruing.

Commissioner Helvering pointed out that every person employed in such work comes under the provisions of Title VIII, which imposes an income tax on the wages of every taxable individual and an excise tax on the pay roll of every employer of one or more. This tax is payable monthly at the office of the Collector of Internal Revenue. The present rate for employer and employee alike is one per cent of the taxable wages paid and received.

Under Title IX of the Act, employers of eight or more persons must pay an excise tax on their annual pay roll. This tax went into effect on January 1, 1936, and tax payments were due from the employers, and the employers alone, at the office of the Collector of Internal Revenue on the first of this year. This tax is payable monthly, although the employer may elect to pay it in regular quarterly installments.

The employer is held responsible for the collection of his employee's tax under Title VIII, the Commissioner explained, and is required to collect it when the wages are paid the employee, whether it be weekly or semi-monthly. Once the employer makes the one per cent deduction from the employee's pay, he becomes the custodian of federal funds and must account for them to the Bureau of Internal Revenue.

This is done, Mr. Helvering said, when the employer makes out Treasury form SS-1, which, accompanied by the employee-employer tax, is filed during the month directly following the month in which the taxes were collected. All tax payments must be made at the office of the Collector of Internal Revenue in the district in which the employer's place of business is located.

Penalties for delinquencies are levied against the employer, not the employee, the Commissioner pointed out, and range from 5 per cent to 25 per cent of the tax due, depending on the period of delinquency. Criminal action may be taken against those who willfully refuse to pay their taxes.

The employers of one or more are also required to file Treasury forms SS-2 and SS-2a. Both are informational forms and must be filed at Collectors' offices not later than July 31, covering the first six months of the year. After that they are to be filed at regular quarterly intervals. Form SS-2 will show all the taxable wages paid to all employees and SS-2a the taxable wages paid each employee.

Participation in a state unemployment compensation fund, approved by the Social Security Board, does not exempt employers from the excise tax under Title IX, Commissioner Helvering said. Nor does the fact that there is no state unemployment compensation fund relieve the employer of his federal tax payments. In those states where an unemployment compensation fund has been approved, deductions up to 90 per cent of the federal tax are allowed the employer who has already paid his state tax. These deductions are not allowed unless the state tax has been paid.

This tax is due in full from all employers in states having no approved fund. The rate for 1936 was one per cent of the total annual pay roll containing eight or more employees, and for 1937 it is two per cent. The rate increases to three per cent in 1938 when it reaches its maximum. The annual returns are made on Treasury form 940.

An employer who employs eight or more persons on each of twenty calendar days during a calendar year, each day being in a different calendar week, is liable to the tax. The same persons do not have to be employed during that period, nor do the hours of employment have to be the same.

# TRANSACTIONS OF THE ASSOCIATION

## 1937 SESSION

(Concluded)

Last Day, Thursday, April 22

The Association, sitting as the Board of Health of the State of Alabama, was called to order at 9:30 A. M. by the President, Dr. Lloyd Noland.

The report of the Board of Censors was rendered by the Chairman, Dr. E. V. Caldwell.

### THE SIXTY-FOURTH ANNUAL REPORT OF THE STATE BOARD OF CENSORS INCLUDING ITS REPORTS AS THE STATE BOARD OF MEDICAL EXAMINERS AND AS THE STATE COMMITTEE OF PUBLIC HEALTH

E. V. Caldwell, M. D., Chairman

The State Board of Censors, in conformity to constitutional mandate, has the honour to submit to this Association its Sixty-Fourth Annual Report.

### PART I

### AS A BOARD OF CENSORS

#### The Year In Retrospect

This Board is happy to be able to again record, and to commend the Association for, the exceptional spirit of harmony now prevailing throughout its entire membership. On April 1st, 1936, the roster of physicians showed a membership of 1455, as contrasted with 1490 for April 1st, 1937; a gain of 35 and representing a percentage of 82 of physicians eligible, exclusive of coloured practitioners. While this percentage ranks high amongst the constituent associations comprising the American Medical Association, our membership might further be augmented through persistent effort. Gratifying as this showing may be, the benefits accruing to the individual reputable physician through identification with the organised profession of his county and state are so outstanding as to call for no emphasis from this Board. Particularly is this true now, when society is desperately grappling with many socio-economic problems in which the medical profession is so vitally concerned. Satisfying answers will not be had to these, without the earnest and unified efforts of all interested groups of society, out in the forefront of which should stand organised medicine. The solidarity of this professional group in Alabama, which has contributed so substantially and so unselfishly to the upbuilding of the public health system of this State, should be further strengthened by the bringing into its ranks of all eligible, ethical, licensed practitioners within the State. With this thought in mind, the Board, while commending the officers of the Association and of the several component county societies, for the results thus far accomplished, earnestly suggests a continued diligence in this field.

#### Activities Of Standing Committees

It will be recalled that at the last annual meeting of the Association, there were created two new standing committees for the purpose of expanding and caring for certain important services to be participated in by the members of this Association. These were a standing Committee on Postgraduate Study and one on Fractures and First Aid. This brings the total number of such standing committees to seven; the other five being the Committee on Public Relations, Committee on Mental Hygiene, Committee on Maternal and Infant Care, Committee on Prevention of Cancer, and the Committee on Prevention of Blindness and Deafness. The Board desires to take this occasion to commend these several committees for the serious and earnest manner in which they have gone about their tasks. This fact is demonstrated by their reports, submitted to you at the opening session of this meet-

ing. Each activity sponsored by these committees is of real concern to the membership of every county medical society; the success of such activities being wholly contingent upon the interest and co-operation manifested in the several counties. May not, therefore, this Board bespeak, on behalf of these committees, the continued support of the county medical societies in the furtherance and perfection of the various programs brought to them through these channels?

### The Responsibilities Of The State Board Of Censors As A State Licensing Board

Through legislative enactment, the people of this State have vested in this Association and in this Board the responsibility of administering and of enforcing, with the aid of the courts, the medical practice act governing all practitioners of the healing art. This means not only the passing upon the fitness and qualifications of those seeking to render this important service, but also—and quite as important—the disciplining of licentiates, even to the point of revocation of an issued license. It is a further function of this Association and of this Board, in the discharge of the legal duties imposed, to protect the public health from the impositions and dangers of those who have not been duly and legally qualified.

During the past several years, one of the important problems with which this Board, serving as a state licensing body, has been endeavouring to cope is that of the medical narcotic violator and addict. While cases of this nature constitute problems of great difficulty and delicacy, yet it is our definite obligation both to society and to the fair name and honour of this Association, to perform this task courageously and fairly in every case claiming the attention of this Board. The license of any medical violator serving a penitentiary sentence is automatically revoked by this Board for a period of one year beginning with the termination of such sentence. Minor infractions on the part of licensed physicians, not seeming to merit the "death sentence" of revocation, are given varying degrees of discipline, as seem indicated in each particular case. In the prosecution of this work the Board has seen fit to make free use of the board of censors of the county in which an infraction, either of violation or addiction, has occurred. This Board makes every effort, through encouraging those who have developed habits of addiction to take prolonged courses of treatment so that they may be restored to society as useful citizens. However, when efforts at rehabilitation have failed in the cases of confirmed habituation or of repeated violation the Board is strongly of the view that for the protection of the interests of society and the public health, such licenses should be revoked until such time as positive proof can be furnished of complete rehabilitation.

This Board takes peculiar pleasure in expressing its thanks to the county boards of censors and to the medical societies for the splendid spirit of almost universal co-operation displayed. The Board's assumption that matters of this nature were of vital concern to the membership of the profession in each county has been amply proven. The Board, therefore, makes earnest appeal to the members of this Association for a continuance of their interest and support in this important field of their labours.

### Amendment To The Constitution

At the last meeting of this Association, in order to simplify the present method of disbursing Association funds, the Board submitted the following amendment to Section 7 of Article XIII of the Constitution:

"He (the Treasurer) shall place all funds and securities of the Association in such banks or depositories as may, from time to time, be designated by the Board of Censors and said funds and securities shall not be transferred except upon the authorisation of the Board. The Treasurer is authorised to pay by check current accounts of the Association when same are supported by the written approval of the Secretary of the Association."

This amendment, in order to comply with constitutional provisions, had to lie over for a period of one year.

The Board now recommends its adoption by the Association.

*The amendment was adopted by the Association.*

### Research Studies In Public Health

The Board takes pleasure in directing the attention of this Association to that part of the State Health Officer's report dealing with certain research studies in the field of public health now being conducted within our State. In the public health field, just as in other fields of scientific medicine, many problems exist, for which the correct answer has not yet been found, and which can only be found through painstaking study, experimentation and observation. The limited amounts appropriated by states to their health departments usually do not permit of such scientific studies to be undertaken by them alone. Consequently, when engaged in by any state, extraneous financial support must be sought, as well as good and sufficient evidence presented to justify the expenditure on the donor's part. Such studies call, first, for sound and sustained programs of execution; and secondly, for efficient machinery and organisation through which to operate. That Alabama's health department, during the past year, has been able to enlist the financial aid of the Rockefeller Foundation and of the United States Public Health Service in two important fields of research—viz: rabies and tuberculosis—should be viewed by this Association and by our people at large as a distinct recognition of the progressiveness and efficiency of a department of state in which the medical profession has played so conspicuous a part. The Board, therefore, recommends that this Association go on record not only as approving the conduct of scientific investigations in the field of public health within this State, but also that its appreciation and thanks be conveyed to the agencies which have made such investigations possible.

*The Association adopted the recommendation of the Board.*

### Legislation In 1936 And 1937

The regular session of the 1935 legislature, which began on January 8th of that year was, because of three recess periods, prolonged over most of this year, adjourning finally on September 13th, 1935. During this session several new departments of state were created and appropriations to certain existing departments increased without, at the same time, augmenting the State's revenues to care for these added expenditures. At the time of adjournment of the 1935 legislature it was manifest that sufficient funds would not be available for the efficient operation of the State's business. Consequently, in February of 1936, the legislature was convened in extraordinary session for the specific purpose of relieving this financial condition. On April 17th, 1936 this extra session was dissolved, without providing the necessary revenues; during all of which time, certain departments of state, not viewed as "essential functions of government"—among which was health—were subjected to drastic reductions of their appropriations through proration. The situation became increasingly acute and the legislature was again convened in extraordinary session on November 23, 1936; adjourning February 26th, 1937. During this last session the State's revenues have been increased through two sources: a general sales tax and a liquor tax. It is felt that because of this recent legislative action, all appropriations which have been made for health work should now be met in full; and thus permit of the prompt inauguration of the contemplated programs for the advancement of the public health of this State which, up to now, for lack of finances, has not been possible. It will be recalled that the special appropriation made by the State to aid counties in maintaining their tuberculosis sanatoria has never become available. Unquestionably the State has a responsibility in the important matter of caring for the tuberculous, and this modest appropriation to the counties should immediately be provided.

Likewise, the need is urgent for a concerted, organised, state-wide drive, under the leadership of this Association, to be launched against the venereal diseases. With complete stabilisation of the health department's present appropriation, it is felt that a substantial beginning can be made in the control of these diseases. In like manner other important activities of the health department should be strengthened and expanded as rapidly as possible. So vital are these matters to the happiness of our people and the prosperity of our commonwealth that the Board has unanimously adopted the subjoined resolution to be transmitted to the Governor and to the citizens of this State and asks that you, as the legally constituted Board of Health, likewise give it your approval.

*Whereas*, The Legislature, at its recent extra session, has wisely provided additional revenues for the more efficient operation of the State Government; and

*Whereas*, During recent years the activities of the health department have been, because of a lack of funds, so restricted in scope as to furnish but the bare necessities in public health protection; and

*Whereas*, The need is urgent in Alabama for more expanded and more enlightened programs in many of the fields of public health endeavour, particularly in the control of the venereal diseases, of tuberculosis, of maternity and child health, and of malaria; therefore, be it

*Resolved*, That this Board as the State Committee of Public Health, and this Association, as the State Board of Health, urge the Governor to make immediately available the full amounts already appropriated by the legislature for health work and for tuberculosis control; and be it further

*Resolved*, That all county governing bodies and the entire citizenry of the State are urged to see that funds sufficient for the adequate and continuing functioning of their local health departments are made available for the proper protection of the public health of their respective communities.

*The expression of the Board was concurred in.*

### The Poliomyelitis Epidemic Of 1936

Not for many years—in fact, it might be said, not since the unfortunate panicky days of yellow fever and of the world wide influenza outbreaks of 1917 and 1918—has Alabama's health department been called upon to battle with an epidemic disease of such proportion as that assumed by poliomyelitis during the summer and early fall of 1936. Local outbreaks of greater or less range there have been of contagious diseases such as smallpox, typhoid fever and typhus fever, diphtheria, malaria and measles; but with none assuming state-wide proportions, and with none striking such terror to the parents' hearts as did this dread disease. The State Health Officer's report which follows furnishes the details of this epidemic and the policies and methods employed by the health department throughout the State to limit its spread and to bring relief to the stricken. At this juncture, however, the Board deems it fitting to express its thanks and appreciation to the Governor of the State, to the organised medical profession, to the federal agencies—more particularly the United States Public Health Service and the Works Progress Administration—to the public press and to the entire citizenry of our State, for the splendid and unfailing co-operation so freely given the health department in this crisis. This epidemic, viewed in perspective, points anew to the importance and value of an organised machinery manned by trained personnel, if a State hopes either to successfully cope with emergencies such as this or to make substantial headway in the mastery of other devastating diseases hovering all about us. Despite the crippled condition of our health department's finances, it should prove most gratifying to this Association, as it has to this Board, to observe the prompt and efficient manner in which this crisis was met and passed.

### The President's Message

The President, after first graciously expressing appreciation to the Association for the honour bestowed by elevating him to the presidency, immediately proceeds to direct attention to some of

the broad problems confronting modern society and in which organised medicine, of necessity, is deeply concerned and in the solution of which must play a conspicuous part.

The President points out that, during the recent trying years of economic depression involving all classes of our social structure, the medical profession has witnessed not only its own security, as an important and essential member of society, actually threatened, but also that there have grown out of this general spirit of social unrest certain suggested plans for the distribution of medical services whose adoption would inevitably tend to a regimentation of medicine by government and to a destruction of freedom of thought and action so necessary to the full flowering of modern scientific medicine. The President cautions that compromise measures aimed at medical independence and freedom will ultimately prove subversive to the best interests not alone of society but of the profession as well and suggests that such tendencies can best be met and mastered through a firm determination, on organised medicine's part, to elevate, to an even higher plane, the quality of medical service and to co-operate in all possible ways in making such service more universally available.

The President closes his brief but thoughtful message by directing attention to the solidarity and efficiency inherent in this Association and makes a strong appeal to its members for the continuing and loyal support of Alabama's outstanding health system, to whose success organised medicine in this State has contributed in so large a measure. The Board commends this message to the careful reading of the membership of this Association.

### Report Of The Vice-Presidents

The Board is happy to record that the reports submitted by these officers reveal a commendable activity and interest in each of the four districts. These reports show that the Vice-President in each district held at least one meeting of the medical societies over which he presides, that the attendance upon and interest displayed in these meetings on the part of the members were most encouraging. The scientific papers contributed on these occasions show a marked improvement and have been of such high order as to merit subsequent publication in our official State Journal.

The Board, therefore, feels that these reports are entitled to the full endorsement of this Association and expresses the hope that these important officers will continue to receive the co-operation and support of the Association's entire membership.

### Report Of The Secretary

The Board finds that the books and records of the Secretary of the Association are complete, accurate and entitled to your approval.

The Board so recommends.

### Report Of The Treasurer

The Auditing Committee from the Board, after careful examination and review of the books of the Treasurer, finds them in proper order and entitled to your approval.

The Board so recommends.

### Committee Of Publication

The report of the Committee of Publication reveals a most encouraging growth and expansion in the range of activities which the State Journal—the official organ of the Association—seeks to embrace. It is particularly gratifying to learn from this report of the marked improvement which has taken place both in the quality and number of scientific papers offered for publication by members of this Association.

The Board recommends the approval of this report.

*The action of the Association was favorable on each of the foregoing recommendations.*

### Reports Of Standing Committees

#### 1. PUBLIC RELATIONS

This report is full and comprehensive and carries many valuable suggestions as to the necessity for the practising physician, not only integrating himself into the life of his own particular community, but also of developing qualities of leadership so necessary for the proper interpretation of ethical medicine to the general public.

This report, after making use of several appropriate published utterances from influential business men and from a leading editorial of a cosmopolitan newspaper on the medical profession and social insurance, makes further helpful suggestions to county medical societies as to how they may better organise for co-operation and participation in all medical activities, and particularly in those sponsored and conducted by the official health forces operating in the several counties of the State.

This report also commends the legislature for its recent action in making available to county medical societies a part of the special license fund paid into the State Treasury by physicians and makes timely suggestions as to the use to which such funds may be put.

The Board not only heartily endorses this report, but finds in it so many suggestions which should be helpful to county medical societies, that it recommends that the Secretary of the Association provide each medical society with a copy for its use and guidance.

The Board recommends the endorsement of this report.

*The recommendation was adopted.*

#### 2. MATERNAL AND INFANT WELFARE

The report of the work of this committee, as was the case in its last annual report, is given over largely to a study and analysis of the 426 maternal deaths recorded in Alabama during 1936. Of these 426 deaths, return study forms were procured from doctors on 288, upon which the report is based. The outstanding factor revealed in this study is the woeful lack of proper antenatal and delivery care in the vast majority of these deaths; only 13 having received what was considered to

be adequate prenatal care and of these 13 only 5 received adequate delivery care. This report emphasises anew the challenge which still confronts the medical profession, health workers and all governmental agencies; viz, better and more adequate prenatal supervision of the pregnant woman and a more adequate provision of hospital facilities for the necessitous case when confronted by obstetric emergencies requiring surgical intervention.

With the suggestion made in this report that the health department give consideration to the employment of a full-time obstetrician for didactic and clinical teaching, the Board is not only in full accord, but expresses the hope that the finances of the department will soon permit of this recommendation being put into effect.

The Board recommends the approval of this report.

*The report was approved by the Association.*

3. POSTGRADUATE STUDY

This committee, newly created by the Association at its last annual meeting, has been actively at work attempting to formulate plans for stimulating scientific work within the county medical societies. In the early part of this year, the members of this committee met with the State Health Officer and members of his staff in Montgomery for the purpose of discussing possible ways in which it might co-operate with the health department in promoting amongst the profession a more active interest in one or more major health programs now being sponsored throughout the State. At this time it was agreed that a real contribution might be made by the committee through the active sponsorship of a state-wide program for the control of the venereal diseases, and that an exhibit be arranged at this meeting, setting forth the important scientific and clinical facts upon which venereal disease programs should rest.

The Board feels that the exhibit displayed by this committee at this meeting has served a most useful purpose and that this report and the work accomplished through it are entitled to the full approval and endorsement of this Association, and the Board so recommends.

*The Association concurred in the expression of the Board.*

4. PREVENTION OF BLINDNESS AND DEAFNESS

The report of this committee reveals that a meeting of its members was held in Talladega on April 12th, 1937, with Mr. D. H. Riddle, Superintendent of the State Schools for the Blind and Deaf, at which meeting Dr. Cannon, Secretary of the Association, and representing the State Health Officer, was also present.

This report sets forth the pleasure of this committee, and commends the superintendent of this institution for the erection of a new hospital now under construction to better care for pupils of the institution. Attention is also directed that inasmuch as this institution is primarily for educational purposes, and not for the purpose of correcting physical defects in those already admitted, considerable financial difficulty is experienced in efforts directed toward corrective measures. The suggestion is made that it might be possible for the State Health Department to co-operate in working out some plan whereby certain of these cases might be examined and receive corrective treatment prior to their entrance into the school.

The Board feels that this recommendation is a timely one and recommends that the State Health Officer endeavour to work out plans for putting into operation the suggestions made in this report.

The Board recommends the approval of this report.

*The report was approved.*

5. FRACTURES AND FIRST AID

This report reveals that the members of this committee have been quite active in bringing both to the medical profession and to lay groups the newer and approved methods of dealing with all types of traumatic injuries and particularly the first aid service to be rendered in highway accidents.

This committee recommends the full co-operation of physicians with the officials of the American Red Cross in the promotion of programs for the establishment of many first aid stations along the highways.

This report is entitled to the approval of the Association, and this Board so recommends.

*The Association gave its approval to the report.*

6. MENTAL HYGIENE

This report reveals that this committee has satisfactorily pushed forward with its educational program launched by it several years ago, and reiterated its hope to have established in Alabama, at as early date as possible, a functioning mental hygiene program officially sponsored and properly financed.

The Board feels that such a program would serve a most useful purpose in a field hitherto sadly neglected and recommends that this Association not only approve such a program, but throw the weight of its influence solidly behind it.

*The Association concurred in the Board's expression.*

7. PREVENTION OF CANCER

This report reveals gratifying activities in the field of education, both for lay groups and within the medical profession. The outstanding accomplishment by this committee during the present year has been the organisation of the Women's Field Army in Alabama. Through clubs, functioning in every county in the State, sound literature for cancer prevention, furnished by the American Society for the Control of Cancer, and distributed through this committee, is being made available for the education of lay groups. The recommendation made by this committee to county medical societies that at least one scientific meeting each year be devoted to a discussion of cancer has the hearty endorsement of this Board.

The report of this committee is entitled to the approval of the Association and the Board so recommends.

*The report was approved.*

## Appeal Of Dr. John D. Burns From Decision Of Franklin County Medical Society

The following appeal of Dr. John D. Burns from a decision of Franklin County Medical Society was introduced before the Association and referred to the State Board of Censors for hearing and consideration:

*To The Medical Association Of The State of Alabama, And To The State Board of Censors:*

The undersigned John D. Burns, M. D., residing and practising medicine at Russellville, Franklin County in said State, hereby shows to the State Medical Association and to the State Board of Censors the following facts:

1. The said John D. Burns became a citizen of Russellville on or about the year 1932 and became a member of the Franklin County Medical Society the same year that he became a citizen of the county.

2. He was and continued as a member of said Society up until about the fall or winter of the year 1936.

3. The first information that the undersigned had that he had been discontinued as a member of the Franklin County Medical Society was through a letter dated December 7, 1936 written to him by Dr. B. S. Lester, of Birmingham, a copy of which is hereto attached and made exhibit "A" to the specifications.

4. After receiving this letter from Dr. Lester the undersigned went to see Dr. N. P. Underwood, who is Secretary of the Franklin County Medical Society, and Dr. Underwood told him that he had been dropped as a member because he failed to pay his dues.

5. On December 9, 1936 the undersigned sent a check to Dr. N. P. Underwood for the sum of $8.00 to pay dues for the years 1936 and 1937, said check being payable to Secretary-Treasurer, Franklin County Medical Society. He received a letter from Dr. N. P. Underwood dated Russellville, Alabama, January 7, 1937, a copy of which letter is hereto attached and made exhibit "B" to these specifications.

6. As a part of these specifications the undersigned hereby quotes Section 3 on page 76 of "A Compend of the Medical Association of the State of Alabama 1928." This section reads as follows: "He (the Treasurer) shall, about the middle of February of each year, serve upon every member whose annual dues remain unpaid, a written notice calling his attention to the requirements of Article VII of this constitution and to the penalty therein prescribed for delinquency in dues." The undersigned hereby avers that no written notice was given to him as provided for in Section 3.

7. The undersigned received from Dr. N. P. Underwood the following certificate with reference to notification of the members of the Franklin County Medical Society, a copy of which is hereto attached and made exhibit "C."

8. He also herewith attaches as exhibit "D" a copy of the minutes of the meeting of the Franklin County Medical Society held January 5, 1937 which also gives a list of the members of the Medical Society, making this exhibit to the specifications.

9. The undersigned has been informed that the purpose of discontinuing him as a member of the Franklin County Medical Society was to deprive him of his contract practise with the Sloss Sheffield Steel & Iron Company at Russellville, Alabama, or any other company which operates in this territory employing men, and as proof of this information he herewith attaches a copy dated December 1, 1936 of the minutes of the Franklin County Medical Society, and makes the same exhibit "E."

10. The undersigned, the said John D. Burns, a practising physician at Russellville in Franklin County, Alabama, hereby appeals to the State Medical Association, and also to the State Board of Censors from the action of the Franklin County Medical Society in excluding him as a member of this organization to the end that the action of said Franklin County Medical Society and its officers and members be revised and that the undersigned be held to be a member of the said Franklin County Medical Society in good standing.

11. The undersigned also hereby brings charges against the Franklin County Medical Society and Dr. Sam Snoddy as President, and Dr. N. P. Underwood, its Secretary & Treasurer for the action taken by said Society, and by these officers in excluding the undersigned without any legal cause or just excuse for the same.

12. The charges above brought against said Franklin County Medical Society and the officers of the same are brought because the action of said Society and the action of the officers of the same were not in accord with but contrary to the constitution and articles governing the action of the Franklin County Medical Society and the officers of the same.

John D. Burns, M. D.

I, John D. Burns, a physician and surgeon practising at Russellville, Franklin County, Alabama, hereby certify that I have, on this, April 1, 1937, mailed a copy of the foregoing specifications and charges together with the exhibits thereto to Dr. Douglas L. Cannon, Secretary of the State Medical Association, Montgomery, Alabama, and a copy of the same to Dr. E. V. Caldwell, Chairman, State Board of Censors, Huntsville, Alabama.

John D. Burns, M. D.

Exhibit "A"

Dr. J. D. Burns,
Russellville, Alabama.

Dear Dr. Burns:

I have recently heard that you are not a member of your local Medical Society, and I am writing to ascertain if this is correct. If so, I am compelled to ask you to join at your earliest possible moment because you know that should you be called upon as a witness in a damage suit for the Sloss Sheffield Steel and Iron Company, your professional testimony will not be considered any more than an ordinary layman's, and in some instances this would cast a reflection on the Company.

Of course I do not know particulars and do not know positively that this is correct, but should it be

true, please write me by return mail and rejoin your local Society at your earliest convenience.

Yours very truly,
B. S. Lester, M. D.

December 7, 1936

Exhibit "B"

Russellville, Alabama
January 7, 1937

Dr. John D. Burns,
Russellville, Alabama.

Dear Dr. Burns:

I am returning your check as your application for membership in the Franklin County Medical Society has been rejected.

Very truly yours,
N. P. Underwood, Secretary

Exhibit "C"

Russellville, Alabama
January 7, 1937.

To Whom It May Concern:

I, Dr. N. P. Underwood, Secretary of the Franklin County Medical Society for six years have never notified any of the members by letter or card of their dues for the Society being due, but always announced it in the meetings at least a month before it was time to pay.

N. P. Underwood, Secretary.

Exhibit "D"

This is a true copy of the minutes of the Franklin County Medical Society, January 5, 1937.

N. P. Underwood, M. D.
Secretary

January 5, 1937

A regular meeting of the Franklin County Medical Society met at Dr. W. A. Gresham's office. Dr. Sam Snoddy presiding. Minutes read and approved.

The application of Dr. John D. Burns for admission into the Franklin County Medical Society was read and Dr. W. H. Spruell made a plea that Dr. Burns be taken back into the Society; after this Dr. Burns made a talk in his own behalf and read one or two articles from the Red Book. After his talk Dr. Clayton arose and said that Dr. Burns could have the matter referred to the County Board of Censors for their recommendations, or could let his application go through and voted on at this meeting. He chose the latter course. The President requested the Secretary to pass the ballots around which was done. There were thirteen ballots cast, including one cast by Dr. Burns. The President then asked Dr. Gresham to call off the ballots. There were 10 No's and 3 Yea's.

The question of fees was brought up by Dr. Spruell and was settled after the Society adjourned.

Dr. Thorn brought up the question of an illegal practitioner in the county, and this was referred to the Censors.

Report of Health Officer.

Dr. Jack Underwood was installed as President, and made a talk and insisted that all members be present at all meetings.

Dr. Clayton agreed to give a spaghetti supper at his home at the next meeting February 2, 1937 at 7:00 P. M. Adjourned.

N. P. Underwood, Secretary.

*Members Present*

| | |
|---|---|
| Dr. Sam Snoddy | Dr. A. M. Reid |
| Dr. W. E. Wilson | Dr. J. A. Thorn |
| Dr. A. J. Underwood | Dr. F. R. Underwood |
| Dr. T. J. Glasgow | Dr. Price Clayton |
| Dr. W. A. Gresham | Dr. W. H. Spruell |
| Dr. Z. L. Weatherford | Dr. N. P. Underwood |

*Non-Members Present*
J. D. Burns

Exhibit "E"

December 1, 1936

Franklin County Medical Society met at a regular meeting with Dr. Snoddy as President. Roll was called and minutes read and approved. The following resolution proposed by the Franklin County Board of Health was presented to the Franklin County Medical Society and adopted unanimously.

"We, the members of the Franklin County Medical Society, are opposed to any physician in the county doing contract practice for any company operating in Franklin County unless said physician be a bona fide member of the Franklin County Medical Society."

Report of Health Officer.

Dr. Wilson and Gresham was appointed to arrange for the next meeting January 5, 1937. Minutes read and approved January 5, 1937. Adjourned.

N. P. Underwood, M. D., Secretary.

THE BOARD'S REPORT ON THE APPEAL

At the hearing of this case before the Board, the following witnesses appeared and testified:

Dr. N. P. Underwood, Dr. Sam Snoddy, Dr. Price Clayton, Dr. W. E. Wilson, Dr. B. S. Lester, Dr. John D. Burns.

The evidence showed that the Franklin County Medical Society had been a chartered county medical society by the State for some fifty years and that while it possessed no written constitution and by-laws of its own to govern its actions and decisions, particularly as these relate to the delinquent dues of members and the penalties attached thereto, the custom of the Secretary-Treasurer of the Society had been, during the remembrance of those members of the Society present, not to notify by card or letter delinquent members in February, but to announce at a regular meeting of the Society, at least one month before revision of the rolls, that such revision would be made. The evidence further showed that it was the custom of the Secretary-Treasurer each year to mail a card to all members notifying them of the March meeting for the revision of the roll of members and the payment of dues, and that this custom was complied with for the March meeting of 1936. The official roster of members of the Association for 1936, based upon the reports received from the secretary and treasurer of county medical societies

made to the Secretary and Treasurer of the State Medical Association, shows the name of Dr. Burns listed as a non-member of the Franklin County Medical Society, residing in said county. This roster for 1936 was published and furnished each member of the Association. Dr. Burns testified that he was not aware of this action in dropping his name from the list of members of the Franklin County Medical Society until the early part of December. The evidence further showed that Dr. Burns' brother-in-law and partner—Dr. Wm. H. Spruell—was a member of the Franklin County Medical Society at the time Dr. Burns' name was stricken from the roll and that such published roster should have been readily available to him. The evidence further showed that Dr. Burns made no effort to be reinstated to membership nor to question the action of the County Medical Society in dropping his name from the roll until notice was received in December from the Medical Director of the Sloss Sheffield Steel and Iron Company—some eight months after his name had been dropped—that it would be necessary for him to be reinstated as a member of a county medical society in order to retain his position with his company. This communication from the Medical Director of the Sloss Sheffield Steel and Iron Company followed the receipt by him of a copy of the following resolution passed by the Franklin County Medical Society December 1, 1936:

"We, the members of the Franklin County Medical Society, are opposed to any physician in the county doing contract practice for any company operating in Franklin County unless said physician be a bona fide member of the Franklin County Medical Society."

Shortly after the receipt of the above communication from the Medical Director of the Sloss Sheffield Steel and Iron Company, upon Dr. Burns' own application, on January 5th, 1937, at a regular meeting of the Franklin County Medical Society, he was given a hearing. At this meeting all members of the society were present except three, two of whom were physically incapacitated and unable to attend. A copy of the minutes of this meeting accompanied the written evidence submitted and is as follows:

"A regular meeting of the Franklin County Medical Society met at Dr. W. A. Gresham's office, Dr. Sam Snoddy presiding. Minutes read and approved.

"The application of Dr. John D. Burns for admission into the Franklin County Medical Society was read and Dr. W. H. Spruell made a plea that Dr. Burns be taken back into the Society; after this Dr. Burns made a talk in his own behalf and read one or two articles from the Red Book. After his talk Dr. Clayton arose and said that Dr. Burns could have the matter referred to the County Board of Censors for their recommendations, or could let his application go through and voted on at this meeting. He chose the latter course. The President requested the Secretary to pass the ballots around which was done. There were thirteen ballots cast, including one cast by Dr. Burns. The President then asked Dr. Gresham to call off the ballots. There were 10 No's and 3 Yea's.

"The question of fees was brought up by Dr. Spruell and was settled after the Society adjourned.

"Dr. Thorn brought up the question of an illegal practitioner in the county, and this was referred to the Censors.

"Report of Health Officer.

"Dr. Jack Underwood was installed as President, and made a talk and insisted that all members be present at all meetings.

"Dr. Clayton agreed to give a spaghetti supper at his home at the next meeting February 2, 1937 at 7:00 P. M. Adjourned.

N. P. Underwood, Secretary."

*Members Present*

| | |
|---|---|
| Dr. Sam Snoddy | Dr. A. M. Reid |
| Dr. W. E. Wilson | Dr. J. A. Thorn |
| Dr. A. J. Underwood | Dr. F. R. Underwood |
| Dr. W. A. Gresham | Dr. Price Clayton |
| Dr. T. J. Glasgow | Dr. W. H. Spruell |
| Dr. Z. L. Weatherford | Dr. N. P. Underwood |

*Non-Members Present*

Dr. John D. Burns

Section 3 of Article XV of the Constitution of this Association reads as follows:

"County medical societies shall, subject to the approval of the Association, adopt rules and regulations for their own government, shall elect their own officers, and shall perform all other needful acts not inconsistent with the constitution, or ordinances, of this Association."

Section 4 of Article XV of the Constitution of this Association reads as follows:

"They shall, under the general control and supervision of the Association, exercise such jurisdiction over their members as is authorized by their respective constitutions, ordinances, and by-laws."

The Board further desires to quote the following from the Report of the State Board of Censors made to the Association in 1924:

"In construing Section 2 of Article XV, supra, together with Section 1, Article III of the constitution of county medical societies, the State Board of Censors ruled as follows: "The board construes these sections of the State and county constitutions to mean that any person who after examination, is granted a certificate to practice medicine in Alabama, from a strictly legal standpoint, is eligible to membership in a county medical society. The possession of this certificate, while the first and absolutely essential count, is only one among many comprising eligibility for membership. He must possess other qualifications; for instance, he must subscribe to the code of ethics promulgated by the Medical Association of the State of Alabama. He must be reputable, etc. The medical organization in Alabama is founded on the principle of local self-government. Every society within constitutional limits must be the judge of its own membership. Each society should investigate carefully every applicant who seeks membership, and admit only such as are found worthy."

In the light of the above and after due consideration of all the evidence submitted, the Board unanimously recommends to the Association that the

action of the Franklin County Medical Society, in striking the name of Dr. John D. Burns from its roll of members, be sustained.

The Board further recommends to the Franklin County Medical Society that after a reasonable probation period and a satisfactory attitude Dr. Burns be given the opportunity of affiliating himself with the Franklin County Medical Society.

THE ASSOCIATION'S ACTION ON THE APPEAL

It was moved and seconded that the recommendation of the Board be adopted.

President Noland declared the question open for discussion; and it was discussed by Drs. Clarence Weil, John D. Burns, A. J. Gay, E. V. Caldwell, A. M. Walker, C. L. Guice, W. S. Britt, N. P. Underwood, S. J. Gay, F. L. Chenault, E. M. Thomas and H. S. Ward; whereupon, the Association, voting on adoption of the Board's recommendation, recorded itself as follows:

*In favor of adoption* (92): Counsellors Ashcraft, Baker, Caldwell, Cameron, Cannon, Chenault, F. L., Crutcher, J. S., Sr., Dabney, Davie, Dowling, Eskew, Faulk, Gordon, Graham, Hatchett, Heacock, Jackson, Jordan, Ledbetter, Lester, Long, Lupton, Martin, J. A., Mason, J. M., Mayer, McCall, McLester, Mohr, Noland, Partlow, Perdue, Ray, Redden, Rucker, Sledge, Talley, Thacker, Walker, Walsh, Walls, Ward, Welch, Weldon, Wilkinson, Wood, Wright.

Delegates Abernethy, Baumhauer, Blake, Board, Bobo, Boozer, Bowman, Brown (Lamar), Bruce, Cole, Cotlin, Crawford, Crutcher, J. S., Jr., Daves, Davis (Talladega), Dinsmore, Fisher, Foshee, Gay (Clay), Gray, Grayson, Huey, Lee (Chambers), Lineberry, Little, Luckie, Morgan (Etowah), Newman, Owen, Parnell, Payne, Peacock, Pickell, Poellnitz, Segrest, Stallworth, Sumner, Teasley, Thompson, Turner, Underwood, Waldrop, Walker, Washam, Wilson, Wood.

*Against Adoption* (15): Counsellors Anderson, Britt, Garber, Gragg, Guice, Newman, Nolen, Thomas, Tillman.

Delegates Gay (Randolph), Givhan, Lee (Lowndes), Sheppard, Walker, Weil.

*Therefore, the motion to adopt the recommendation of the Board prevailed.*

## Resolutions

RESOLUTION BY DR. SEALE HARRIS, SR.

*Whereas*, Dr. James Marion Sims. the father of modern gynecology, resided in Montgomery, Alabama, from 1838 to 1853, during which time he perfected the operation for vesicovaginal fistula and made other discoveries upon which the practice of modern gynecology is based; and

*Whereas*, Marion Sims is recognized throughout the world as one of the greatest surgeons in the history of medicine; and

*Whereas*, South Carolina, the state of his birth, and New York, the state of his adoption after leaving Alabama, have erected monuments to commemorate the achievements of Sims; and

*Whereas*, Alabama, the state wherein was lit the genius of Sims has failed in the duty to erect a suitable memorial to one of the greatest men who has ever lived within her borders; therefore be it

*Resolved*, That The Medical Association of the State of Alabama endorse a movement to erect a suitable monument to Dr. James Marion Sims to be placed on the Capitol grounds in Montgomery; and be it further

*Resolved*, That a committee of five be appointed by the President of The Medical Association of the State of Alabama to raise funds, select and have erected a suitable monument to Dr. Sims.

The Board recommends the adoption of this resolution.

*The resolution was adopted unanimously.*

RESOLUTION BY DR. C. W. SHROPSHIRE

*Be It Resolved*, That the Governor of this State and the State Health Officer be requested to furnish free drugs to all physicians for the treatment of their indigent syphilitic patients and that a copy of this resolution be sent to the Governor and to the State Health Officer.

This matter was given consideration at the March 1937 meeting of the State Committee of Public Health and the Board recommended that the State Health Officer endeavour, within the limitations of the appropriations available for health work in this State, not only to furnish drugs for the treatment of the indigent case but for all cases of syphilis regardless of their economic status, looking to a better control of the venereal diseases in this State.

Inasmuch as this Board has given careful consideration and made recommendations concerning the matter embraced in this resolution, it is recommended that this resolution be not endorsed.

*The recommendation of the Board was concurred in.*

## Resignation Of Dr. Walter Scott

At the close of the meeting of the State Board of Censors on Wednesday afternoon, the following communication was submitted to the Board:

"Board of Censors of the Medical Association of the State of Alabama:

"Gentlemen:

"I am deeply appreciative of the honor bestowed on me by being elected a member of this Board. I find that my time is so limited that it is impossible for me to properly attend the duties entailed. I, therefore, submit my resignation as a member of this Board effective at the close of this session of the Association. In offering my resignation, I want you to know that I am most appreciative of the honor and am only sorry that my conscience will not allow me to further serve.

"Very respectfully yours,
Walter F. Scott."

The Board, with many regrets, accepted this resignation of Dr. Scott on behalf of the Association. It will be necessary, therefore, for the Association in due course, to elect another member to serve on the State Board of Censors to fill the unexpired term of Dr. Scott.

### Miscellaneous Matters

It has been brought to the attention of this Board that certain manufacturing and supply institutions have taken the position that they will solicit orders from and sell to only such persons known to have a reputable and ethical standing in the medical profession. This attitude on the part of these firms appears to the Board both as being commendable and worthy of recognition by the members of this Association. It is recommended that this Association go on record as endorsing and approving the co-operation of such firms in their efforts to protect and maintain the high standards for which the organised medical profession of this State and of this country has always stood.

*The recommendation of the Board was concurred in.*

*On motion duly seconded, Part I of the Board's report was adopted as a whole.*

## PART II

## REPORT OF THE BOARD OF CENSORS AS A BOARD OF MEDICAL EXAMINERS

### EXAMINATION HELD JUNE 23-25, 1936

Total number examined ..... 27
Total number of certificates of qualification granted ..... 23
Total number of pro forma certificates granted 42
(a) By reciprocity with other states ..... 41
(b) From the National Board of Medical Examiners ..... 1

### APPLICANTS GRANTED CERTIFICATES OF QUALIFICATION

Bograd, Nathan
Burkhalter, W. D.
Bush, Jasper Dixon, Jr.
Davis, Luther, Jr.
Davis, Sumner Danforth, II
Dawson, Lewis Mercer
Donald, Charles Johnson, Jr.
Farrior, Joseph Brown
Griffith, Robert Leland
Hankins, Gordon Middleton
Henderson, Major Joel
Hightower, Russell Garnett
Irwin, Willard Weston
Maurer, Robert Daniel
Motley, Jewett Palmer
Newton, George Edwin
Perley, Abraham Israel
Robinson, Edward Bryce, Jr.
Trucks, James Frank
Vinson, Noley Hugh
Wilkerson, Arthur Foster
Williams, Howard Bailey
Williams, James Hayes

### RECIPROCITY APPLICANTS RECEIVED APRIL 1936-APRIL 1937

Alford, Othar Thurston—Tenn. ..... Feb. 9, '37
Allen, Joseph West—La. ..... Dec. 18, '36
Baker, Reginald William—La. ..... Aug. 24, '36
Brown, Alexander John—Mo. ..... July 1, '36
Cermak, Emil Charles—Neb. ..... July 29. '36
Chenault, John W. (Col.)—Ill. ..... Dec. 18, '36
Cleveland, Hunt—Tenn. ..... May 25, '36
Collins, Henry Clovis—Ga. ..... Jan. 7, '37
Craig, William Jesse—La. ..... Feb. 2, '37
Darden, William Howard—Minn. ..... Jan. 20, '37
Dunn, Julius Ethelbert—Ky. ..... Aug. 25, '36
Eversole, William Clegg—Va. ..... July 21, '36
Finney, James Owen—Tenn. ..... July 2, '36
Gould. Kenneth Newton—Ky. ..... Nov. 13, '36
Hall, Frank Marion—Tenn. ..... May 19, '36
Hall, Samuel Parks, Jr.—Ga. ..... July 29, '36
Holman, Norman Willard—Ga. ..... July 18, '36
Hughes, Brady Alexander—Pa. ..... Aug. 24, '36
Johnson, Hugh Dent—Tenn. ..... June 26, '36
Lamberth, Wade Camdon—Mo. ..... July 4, '36
Linder, Hugh Mattison Camp—Tenn. ..... Sept. 26, '36
Long, Randolph Nelson—La. ..... Jan. 20, '37
Lozano, Alfred Raymond—Texas ..... Nov. 16, '36
MacLennan, Edward Reynolds—Ga. ..... Aug. 24, '36
Martin, Carl Turner—Ga. ..... Aug. 29, '36
Nodine, Edwin Rogers—N. Y. ..... Mar. 23, '37
Park, Milton Oliver—Tenn. ..... Apr. 19, '37
Payne, Thomas Jefferson, Jr.—La. ..... July 1, '36
Payne, William Norman—Miss. ..... Apr. 19, '37
Peeler, Joseph Glenn—Miss. ..... July 21, '36
Repa, Joseph John—Pa. ..... July 30, '36
Sale, George Goble—N. B. M. E. ..... Nov. 14, '36
Scott, Edgar Marvin—Tenn. ..... Jan. 20, '37
Shamblin, Reginal Dawson—La. ..... Oct. 20, '36
Smith, Joe Patton—Miss. ..... May 9, '36
Stewart, Roddie Lesley—Tenn. ..... June 13, '36
Taylor, Roy Virgil—Tenn. ..... Sept. 15, '36
Teaford, Benjamin J.—Ind. ..... Mar. 15, '37
Teague, Eldred Burder—Pa. ..... Nov. 12, '36
Vaughn, Cecil Judson—Miss. ..... Oct. 5, '36
Weiner, Harry—Minn. ..... June 13, '36
Winslow, Robert C.—Kan. ..... July 9, '36

*The Association approved Part II of the Board's report.*

## PART III

## REPORT OF THE BOARD OF CENSORS AS A STATE COMMITTEE OF PUBLIC HEALTH

J. N. Baker, M. D.
State Health Officer

To the members of the Medical Association of the State of Alabama, sitting as a State Board of Health:

I have the honour, as your health executive, to submit herewith my annual report covering the various activities of the health department during the past year.

### Trends In Mortality Statistics For 1936

The mortality statistics given below are provisional and, therefore, subject to correction when the final figures are obtained.

*Births*:—During the past eight years (1928-1935), the trend in the birth rate has been downward. The birth rates in the Southeastern States are high when compared with those of states in other sections of the country; however, the rate of decrease in the birth rate has been greatest in the Southeastern States. Is it not surprising, therefore, to find the provisional birth rate in 1936 (21.4) continuing the decline in the rate; there were 61,072 live births. During the past two decades, the birth rate of the United States Registration Area has been falling; in 1935, the last year of record, the rate was 16.9 per 1,000 population.

*Stillbirths*:—Trends in the stillbirth rate, both for Alabama and the United States Registration Area, have been rather uneventful, with a slight

tendency for the rate to decline. There were recorded 2,639 stillbirths; the stillbirth rate in Alabama was 41.4 per 1,000 total births in 1936. Indications are that the final rate will be the lowest recorded in a decade.

*Infant Mortality*:—Deaths of infants under one year numbered 4,002, representing an increase of approximately 100 more in 1936 than were recorded in the preceding year. The trend in the infant death rate has been downward during the last decade; upward in the last quinquennium. Although the provisional infant mortality rate was 65.5 in 1936, it is believed that the final recorded figure will be equal to or less than the figure recorded in 1935 (62.5). The infant mortality rate in the United States Registration Area in 1935, the last year of record, was 55.7 per 1,000 live births; in the same year, the white rate in Alabama was 51.2.

*Deaths From Childhood Diseases*:—The picture presented in 1936 from this group of diseases was, in general, a favorable one. New low rates were recorded from whooping cough (2.9 per 100,000 population) and diphtheria (4.1). The death rate from measles (0.8) has been lower only once in the preceding decade. On the other side of the picture, the rate from diarrhea and enteritis, under two years, (18.0) increased. Owing to the epidemic of acute anterior poliomyelitis, there were 40 deaths, which represents more than twice the average annual figure.

*Deaths*:—There were 30,961 deaths. The death rate (10.9) exceeded every figure of record during the preceding quinquennium. In 1933, the most severe year of the depression period, the lowest death rate for more than a decade was recorded. Many states reported a similar experience. The following year (1934) the rate in Alabama increased and in 1935, decreased only slightly below the 1934 figure. It would appear that the depression has finally made apparent its effect upon the mortality rate. In all probability, the final recorded death rate for 1936 will exceed 11 per 1,000 population. The experience of the United States Registration Area was similar.

*Deaths From Other Important Causes*:—The picture presented by this group of causes of death was unfavorable. Although the provisional death rate from typhoid fever (2.8) per 100,000 population), homicide (21.1) and cancer (56.1) were below the figures recorded in the preceding year, it is doubtful whether the final recorded rates from the first two causes of death will be less than the 1935 figures, and the rate from the latter will probably be about equal to those recorded in 1933 and 1934. The provisional death rate from malaria (11.6), although equal to the recorded figure in 1935, will probably exceed the latter in 1936, when the final figure is recorded.

The downward trend in the death rate from tuberculosis was terminated by an increase in the rate to 64.2; similarly, the downward trend from puerperal causes was also stopped, the death rate being 66.9 per 10,000 total births. New high death rates were recorded from the following causes: heart disease (148.0), diabetes (12.4) and cerebral hemorrhage (76.6); rates from bronchitis (2.8), pneumonia (94.7) and syphilis (16.5) were the highest in eight years; influenza (51.4), highest in seven years and appendicitis (11.1), suicide (7.8) and nephritis (82.1), highest in four years.

### Poliomyelitis

During the seven years of my incumbency as State Health Officer, the year 1936 marks the first which has called for a report on a contagious disease of such a widespread nature as to become epidemic and to seriously threaten the health and lives of the entire population of our state. The disease in question was poliomyelitis, which hitherto had never visited Alabama other than in sporadic form. Beginning in June of 1936 in certain of the most northern and western counties, its epidemic character remained confined to the northern half of the state, extending no further south than Jefferson County and counties immediately contiguous. Every known and approved method of limiting the spread of this disease was promptly applied, to which was further added the use of the picric acid-alum nasal spray, recently developed and recommended by the United States Public Health Service; this agent was applied on an extensive and state-wide basis as far as was practicable. Throughout the entire period of the epidemic the disease, in Alabama, remained confined to the northern half, with some apparent spill-over, however, to the west, north and east, into the adjoining States of Mississippi, Tennessee and Georgia. During the period June 1st-November 1st, 364 cases were reported, of which 30 died, giving a mortality rate of 8.2 per cent. The generalised use of the nasal spray did not get under way until the latter half of July; during which time it is roughly estimated that probably 1,000,000, or more of the population received the spray in some manner or other. In the beginning, attempt was made to have the nasal spray applied either by a physician, who would appreciate the importance of having the solution reach the olfactory membrane of the nasal vault, or by some one instructed as to the proper technique of its application. In practice, however, this was found impossible of attainment; and, as a consequence and because of faulty technique, likely many cases were sprayed without actually receiving the hoped-for benefit. These are human factors, difficult to either control or to evaluate. While, for these reasons, definite conclusions as to the efficacy of the spray as a control measure in the hands of the untrained general population will have to await further observation and testing, this large experience in its clinical application points rather conclusively to its comparative innocuousness, except for an occasional allergic reaction in individuals manifesting sensitivity to picric acid.

An attempt was made also to furnish adequate nursing care to all cases through nurses trained in the accurate grading of muscle groups and the proper application of splints. Every physician was offered the services of one of these nurses and in nearly all instances the offer was accepted. Appreciation must be expressed to the United States Public Health Service and the New York State Department of Health for the loan of a competent supervisor and to the Works Progress Administration for the additional nurses supplied

for this work. Many of the cases with deformities are now being treated through the crippled children's clinics.

## Research Studies In The Field Of Public Health

It is gratifying to be able to report that during 1936 scientific studies of an investigative nature in two important fields of public health have been launched in Alabama and are being financed in whole through extra-state agencies. Activities of this nature, after being carefully considered by the health department as to their feasibility, value and soundness, are fused into its general health programs and become an integral part of the work sponsored and directed by the department. It is of the nature of a flattering compliment to the efficiency of Alabama's health system that out-of-state agencies seeking to further the cause of public health, through scientific investigation, are attracted to Alabama as a suitable field for the conduct of such studies; for, without proper organisation and machinery for the prosecution of such work, the objective sought is not likely to be attained.

For five years now such a research has been going on in Lee County in an effort to more clearly define many of the unsettled problems of rural tuberculosis. This has been financed by the Rockefeller Foundation at a cost of $91,099.64, and will continue at least through the remainder of this year.

### RABIES STUDY

As is well known, the steadily mounting incidence of rabies in Alabama, both human and canine, during the past several years, has created a most serious health hazard. The legislative approach looking to its control through vaccination of all dogs and the impounding of the stray dog, has, up to the most recent session of the legislature, met with many obstacles. There still exist undertermined and controversial questions in the whole field of rabies control, which call for a more extended investigation into both its scientific and clinical aspects. The presentation of this problem to the Rockefeller Foundation by the health department met with such sympathetic interest and response, that this Foundation has agreed to finance an extended study, in conjunction with our laboratories, which will have as an objective the definite determination of at least some of the moot issues involved. For this purpose, a special laboratory and dog kennels have been constructed on the State properties at Kilby Prison and the study, which is just getting under way, will likely continue over a period of several years. This investigation will be under the direct supervision of Dr. C. N. Leach, one of the outstanding scientists of the Foundation's staff, who will have as his consultants and advisers other members from the Foundation's laboratories. Consequently, the dependability and scientific accuracy of the study and the conclusions to be drawn from it, should not be open to question.

### STATE-WIDE INTESTINAL PARASITE SURVEY

Alabama's population is still predominantly rural. Some 70 per cent of our people now reside either in the country-side or in towns of less than 2,500, where proper sanitary facilities for the disposal of human wastes are difficult to procure. It may be truthfully said that organised rural health work in Alabama, and throughout the South generally, received its first and greatest impetus through efforts made to bring into practical application the known scientific facts concerning the life cycle of the hookworm and the methods of its transmission to the human host, via the excreta route. For more than twenty years now a sound program in rural sanitation has been vigourously pushed and promoted in an effort to bring under control all intestinal diseases prevalent in the state. Among these diseases the devastations wrought by the hookworm have been outstandingly comspicuous in undermining the physical and mental efficiency of our rural population. While a rather pretentious and time-consuming task, the health department, during the past year and a half, has undertaken a state-wide survey of the school population, to determine the hookworm problem now existing in each county. In the conduct of this work, effort has been made, also, to determine the general prevalance of other intestinal parasites, particularly the round and pin worms, as well as to evaluate the relative efficiency of the various anthelmintic drugs recommended for their eradication. This study, when completed, will be the most extensive undertaken by any state and should reveal facts of real usefulness in the future handling of human intestinal parasitic infestation.

### MALARIA CONTROL

Mention should here be made, also, of co-operative projects in malaria control now going on in the Tennessee River basin area of this state which are being jointly conducted by our health department and the Medical Section of the Tennessee Valley Authority. The changed physical conditions of the vast areas in this river basin, resulting from the impoundage projects now going on, have directed anew attention to the importance of adequately planned programs for the control of malaria for the entire section. In an effort to solve these newer problems and to improve the health and economic status of the people within this area, it is gratifying to be able to record the splendid spirit of co-operation manifested by the Director of Health of the Tennessee Valley Authority and his entire staff. In order to more clearly define the malaria incidence in this area and to establish a base line for future comparison, blood surveys and field studies, at many points, are being jointly conducted by the health machinery of the state and the medical personnel of the Tennessee Valley Authority.

### STUDY IN TUBERCULOSIS INCIDENCE

The other interesting study begun in 1936, and being financed by the United States Public Health Service, has for its primary purpose, the determination, if possible, of the various causative factors at play, to account for the wide divergence in the incidence of tuberculosis found to exist in the northern and southern portions of our state. For example, the counties of Coffee and Geneva, in the southern portion, have the lowest average death rates (1933-1935) from tuberculosis of any within

the state being 18.8 and 18.6, respectively; the counties of Lauderdale and Pickens, in the northern portion, have the highest rates, being 96.5 and 96.4, respectively. One asks, Why? This study, which plans to probe into all possible contributing factors, will seek to find the answer.

## Contemplated Expansion Of Public Health Activities

### COMPLETE STATE-WIDE COUNTY ORGANISATION

During the past few years, because of the financial restrictions resulting from proration, it has not been possible for the health department to think in terms of inaugurating new activities in the public health field. Its resources have been severely taxed to hold together the rather large field force of 57 organised health units, which constitutes one of the real bulwarks of strength of Alabama's health system. To accomplish this end, it has been necessary to hold in curtailment central activities and to postpone contemplated plans for expansion. The recent action of the legislature, whereby the state's revenues will be substantially increased, should now permit the health department to go forward with these plans. Both of the recent revenue bills enacted by the legislature also bring additional revenues into the counties, which have been earmarked for public health, public welfare, and agricultural extension activities. In short, health work in every county should now be put on a more secure and stabilised fundation than ever before. Consequently, one of our early efforts shall be to perfect health work on a full-time basis in the remaining 10 unorganised counties, as well as to strengthen and expand activities in the present 57 organised counties. It is hoped that the close of this present year will witness an almost, if not quite completed, organisation in every county of the State. At the present time, however, considerable difficulty is being experienced in procuring suitable and promising young physicians to enter the public health field as a life career. The rather modest salaries which the health department can now pay do not seem to lure or hold them, when visions of greater emolument, through private practice, beckon. The field of public health for the medical officer has become one of the specialties in medicine and calls for a particular training comparable to that required in the other specialties. If we are to expect the young physician group, from which we hope to recruit suitable material, to choose public health as a life work, we must likewise provide not only security of tenure but also opportunities for advancement and compensation commensurate with the duties and responsibilities of other medical specialties. The present tendency of the young medical graduate, emerging from an hospital internship, to view a temporary service as a health officer in the light of a convenient means of bridging over a financial emergency, is neither satisfacory nor wholesome to the cause of public health.

The personnel constituting these health units must needs be broadly and soundly trained in modern health practices so that they may furnish the leadership and act as integrators for all agencies seeking to better the health and living conditions within their communities. The proper training of the several types of personnel—not only the health officer, but the public health nurse and the sanitation officer as well—is an immediate and important responsibility which must be pushed forward as rapidly as possible. Modern health work is an up-and-going concern, not a static institution; and in order to meet the newer obligations thrust upon it by society and scientific discovery, must carefully cull and prepare those to whom is to be entrusted the responsibility of delivering this service to the consuming public.

### DIVISION OF HEALTH EDUCATION AND PUBLICITY

One of the very important fields of activity for any progressive health department to engage in is that of educating the general public as to the value and need of health—more and better health both for the community and for the individual. So many statements bearing on health, ranging from subtle half-truths to falsities, reach the public through commercial or questionable sources, that the official health department should be equipped both to counteract such influences, by keeping before the public the truth in such matters, as well as to educate and inform along sound lines of health. To be in position to more fully meet this need, the health department has added to its administrative staff a man well trained in health education and publicity work.

### TUBERCULOSIS CONTROL

It is hoped that the state-wide program for tuberculosis control, which has as its objective the erection of county or district sanatoria by the counties themselves, with the state participating in a financial way in the maintenance of these institutions, may now rapidly be gotten under way. As our consultative, diagnostic chest clinics uncover more and more earlier cases of tuberculosis, the need becomes more acutely felt for hospital facilities where modern surgical therapy may be applied. With the proper discretion in the selection of cases to be hospitalised and by the application of home isolation, through the generous use of the Burr Cottage for the far-advanced case not suitable for collapse therapy, this program provides a way by which the limited funds and facilities now available may be utilised to the best possible advantage. In the absence of any sort of state institution for the tuberculous, this approach through county or district sanatoria, with the State aiding in their maintenance, offers the only sound alternative and must be pushed with the utmost vigour. Alabama has too long been a laggard in the matter of doing something in a concrete way toward the solution of this very definite and major public health problem.

### VENEREAL DISEASE CONTROL

Now that the public, through the preachments and proddings of the medical profession and health workers, has been thoroughly aroused as to the seriousness of the venereal disease menace, it becomes the responsibility of these professional groups to devise programs and machinery looking to a satisfactory control of these diseases. Because of the hugeness, complexity and universality of the problem, any plan decided upon must be carefully considered and possess sufficient flexibility

and fluidity to meet local or changing conditions. The Committee on Postgraduate Study of the State Medical Association considered this problem to be of such outstanding importance that its forces have been fused with those of the health department looking to the end of developing sound programs for the control of these diseases on a state-wide basis and in every county in the state. It must be borne in mind that syphilis is a contagious disease, transmitted most often, save in the congenital type, by direct personal contact, and that all effort at control, other than rendering the infectious case non-infectious through proper and adequate treatment, has proven quite ineffective, if not quite futile. In the control of no other major health problem does the factor of *treatment* play so important a role as in syphilis. No comprehensive, long-range program of control can hope to succeed which does not enlist the interest and active support of the practising medical profession and which does not make provision for its financial participation in such program. Because of the already legal submergence into organised medicine of the health functions of this state, little or no difficulty should be encountered in rapidly developing sound and workable programs which may likely serve as models for other states, not so circumstanced. The response and interest already shown in this problem by the entire medical profession of the state has been of the finest sort, and gives assurance that the results to be attained will be solely dependent upon funds which can be made available through the health department for this purpose, and not upon a lack of cooperative effort on the part of the profession.

### RABIES CONTROL

A queer quirk seizes upon the legislative mind at the bare mention of legislation seeking to safeguard human life from the perils of rabies by striking at the real source—the dog. Then, it seems, solid facts and figures and calm reasoning must give way to a full sway of the emotions. For the past three sessions of the legislature the health department has attempted to arouse public interest to the point of bringing about some sort of state-wide legislation for the better control of this preventable menace. At long last, on the final legislative day of the most recent session, February 26th, 1937, there was enacted into law a state-wide bill, which, while not to be viewed as a model of perfection because of certain necessary compromises, should permit of an earnest beginning to be made in the control of rabies in this state. This disease has been steadily on the increase during the past several years, as the following figures proclaim:

| Year | Animal Heads Examined | Number Found Positive | Human Treatments Distributed |
|---|---|---|---|
| 1930 | 1054 | 443 | 1791 |
| 1931 | 1202 | 589 | 2679 |
| 1932 | 1615 | 779 | 3697 |
| 1933 | 1520 | 693 | 3620 |
| 1934 | 2353 | 1017 | 5514 |
| 1935 | 2062 | 977 | 5038 |
| 1936 | 1758 | 883 | 4036 |

Since the dog is the chief factor in the spread of rabies, control measures should be instituted against this animal. This proposed bill is not designed as a revenue producer. It is merely a regulatory measure. The ultimate aims are: (1) the reduction of the stray dog population of Alabama; (2) the protection of the remaining dogs in so far as possible by vaccination; (3) prevention of the spread of rabies to other livestock (many valuable animals succumb to this disease each year); (4) of greatest importance, the prevention of spread of rabies to human beings (four persons died from rabies last year).

The bill vests general supervisory powers in county boards of health, which boards, with the approval of the State Health Officer and State Veterinarian, shall designate or appoint in each county a rabies inspector whose duty it will be to enforce the provisions of the act, under the direction of the county board of health. The fee fixed for the inoculation of dogs is not to exceed 50c, including the cost of vaccine. Provision is also made for the impounding and handling of unlicensed dogs, for which proper vaccination tags or certificates cannot be produced. From the above it will be seen that county boards of health have been given a rather definite and broad responsibility in an effort to make the act operative and the hope is expressed that these boards will so familiarise themselves with its provisions as to bring to the people of their several counties greater protection from rabies, which this act seeks to throw about them.

### THE FIELD OF INDUSTRIAL HYGIENE

Few states of the Union possess greater natural resources than Alabama. Its vast deposits of coal and iron ore; its many large streams and fine harbor facilities; its variegated, yet salubrious climate, offer unusual possibilities and opportunities for a more widespread industrialism of the state than now exists. The stigma and reputation formerly prevailing in other states regarding Alabama's unhealthy status, because of malaria, hookworm and other communicable diseases, have, in recent years, been quite dissipated, and largely because of the efforts put forth by the health department. To-day we witness capital, both foreign and local, manifesting a keen interest in the establishment of many diversified forms of industrial pursuits. Alabama's mortality rate for the year 1935 was 10.4, as contrasted with a death rate of 11 for the United States as a whole; which should be argument enough to refute the unsavoury health reputation formerly enjoyed by this state. As these industrial activities develop and multiply there will be real need for adequate health supervision for certain industries carrying health hazards for their employees. In truth, such need already exists; but has not been met because of financial straits. However, it is hoped that at an early date the health department will be in position to set up within its central organisation suitable machinery for caring for the state's needs in this regard.

### County Organization

Today 91.54 per cent of the state's population is embraced in the 57 counties enjoying full-time

health service on a local basis. Late in 1936 Autauga ceased operations for financial reasons; early in 1937 activities were instituted in Butler. Thus the total number of organized counties remains at the figure of a year ago. Indications point to the inauguration, at a not distant date, of service in all counties through revenue labeled for public health. This is greatly to be desired, not only that the remaining 8.46 per cent may enjoy a benefit conferred on their fellow citizens of other counties but also that appropriations may be stabilized.

Improved character of service rendered by the several county health departments will be a reflection of stabilization of monies. Looking to this improvement, an amended system of basic records has been placed in operation, constituting a link in a scheme of reporting recommended by the State and Territorial Health Officers and being foundation stones for an appraisal of the adequacy of programs engaged in.

Not always has the program of the average county health department been as intelligently planned as might have been desired. As a consequence, the return on money invested by local agencies and the state has not always produced maximum returns. To overcome this deficiency, program planning is claiming the attention of the division's field advisers in county organization. First things first is the avenue of approach.

As a forerunner of the endeavor, district conferences were held at eleven points over the state in the period December 7-22, 1936. At Russellville, Huntsville, Tuscaloosa, Birmingham, Gadsden, Opelika, Ozark, Selma, Evergreen, Mobile and Wetumpka, health officers, nurses, sanitation officers and clerks of the counties contiguous to the host county were gathered for a discussion of such topics as the following:

1. The coordination of activities in a county health department.

2. The relation of central administration to county organization.

3. How may central administration be of greater service to county health departments?

4. Records and record keeping.

At the noon hour in each of the district centers, a luncheon engagement afforded opportunity for representatives of all official county agencies to engage in a round table discussion centering about the topic "How may we help one another?" It is anticipated that the district conference plan will be a continuing order of business every four to six months.

The greatest need in county organization still remains a financial one. However, the action taken by the legislature at its most recent extraordinary session, through creating additional revenues both for the state and counties, should go far towards removing this hitherto serious handicap. Recognition must be given to the fact that trained health personnel should be adequately compensated, if the health organization of the state is to be held intact and function efficiently. Because of this situation it has been very difficult to keep the field manned, particularly as regards county health officers. Your State Health Officer looks forward earnestly to the time when the type organization he visualizes for Alabama may be functioning in all particulars.

## Bureau Of Preventable Diseases

Of the communicable diseases, the record in some instances was favorable, while increases were shown in others.

*Typhoid fever* was approximately the same as the preceding year, although no definite or localized epidemics were reported. This disease is still a problem in certain rural areas where the safeguards of sanitation and water supplies have not been fully utilized.

*Diphtheria* showed a slight decrease, but the disease is still entirely too prevalent. Studies as to the incidence of carriers are being conducted and some explanation for the number of cases may be found in the high percentage of school children showing virulent organisms in the nasopharynx without clinical manifestations. That there is a real geographical difference in the incidence and character of diphtheria throughout the United States is becoming apparent, and Alabama has been selected as one of the points of study in an investigation sponsored by the American Public Health Association.

*Typhus fever* is showing a tendency to again increase and has also spread to parts of the state which had previously been free of the infection. Birmingham had a small outbreak in 1936 and cases were also found in Randolph and Marshall Counties. The bulk of the infection remained in Southeast Alabama and there was a real epidemic of the disease in Brundidge, Pike County, which only subsided after an extensive rat-poisoning campaign had been applied. Efforts to promote rat-proofing have been continued, as well as localized rat-destruction programs. A continuous program is essential, however, if permanent results are to be obtained.

*Malaria* was markedly more prevalent during 1936. This disease fluctuates widely from year to year, dependent on climatic conditions, but it is apparent that control in any given area can only come through the expenditure of large amounts of money, intelligently applied. The program should be a long-time, long-range one, embracing all the known methods of attack—drainage, larvacides, screening, insecticides and drug therapy. The ordinary limited appropriations to health departments are not adequate for such continuing programs.

*The hookworm survey* which has been carried on for the past two years is now completed. Every county in the state has had a representative sample of school children examined and various drugs have been tried in treating those found infected. A paper on the efficacy of two anthelmintics, carbon tetrachloride-oil of chenopodium and tetrachlorethylene, was presented at the A. P. H. A. meeting in New Orleans and it is planned to publish additional papers on this state-wide survey as soon as the information is tabulated. A true picture of the hookworm incidence in the state by counties is now available for the first time.

DIVISION OF VENEREAL DISEASES

The problem of controlling the venereal diseases has been brought to the forefront by the Surgeon General of the United States Public Health Service and a nation-wide program is being inaugurated. In Alabama, with its high Negro population, the problem is particularly serious and demands the cooperation of the whole medical profession with the health forces. The stabilization of appropriations should enable more adequate funds to be made available for this program.

In 1936 drugs for the treatment of indigent cases of syphilis were distributed to all doctors and clinics. There were 40,751 ampules of 0.6 gram neoarsphenamine, 29,380 cc. of bismuth, and 13,030 cc. of mercury distributed.

During the year 1936 there were reported 11,223 new cases of syphilis, a rate of 3.98 per 1000; 3773 new cases of gonorrhea, a rate of 1.34 per 1000, and 135 new cases of chancroid, a rate of 0.47 per 100. The estimated number of new cases per year is 11,258 of syphilis, and 22,515 of gonorrhea. This means, then, that almost 100% of the new cases of syphilis were reported, but only about 17% of the cases of gonorrhea. Of the clinic cases of syphilis, 43.1% were reported as being in the primary and secondary stages, and 36.5% of the cases of gonorrhea as being in the acute stage.

There were sixteen free or small-pay clinics operated in the state during the year. Only three of these treated both syphilis and gonorrhea, with the remaining thirteen treating syphilis only. In a number of counties the county medical society sponsors a small-pay clinic, with the various physicians rotating in charge, and with the health department furnishing the equipment and supplies. Such a cooperative effort would seem to be a logical solution of the problem of furnishing treatment to those unable to pay for private service.

DIVISION OF TUBERCULOSIS

During the year 1936 the Tuberculosis Division held 84 clinics and studied 4,465 patients:

4,465 x-rays were made.
845 positive diagnoses were made.
514 of these were adult type pulmonary tuberculosis.
331 were childhood type tuberculosis.
135 more were classified as strongly suspected of having tuberculosis.

The 84 clinics were held in 62 of the counties. Thirteen of these clinics were in twelve of the unorganized counties. Other agencies were operative in the remaining five counties, conducting regular chest clinics, or making chest consultation work available through a cooperative plan with the local physicians.

It is proposed that more time be spent by the clinician in the field, making contacts with those physicians who do not make full use of the clinic's facilities. Funds permitting, a more interesting x-ray reporting system, which proposes to make small duplicates of the positive films to accompany the written x-ray report, will be instituted. It is felt that a bit more vigorous campaign among the physicians will result in improved selection of clinic material and a more widespread use of clinical facilities. Demonstration of films and talks by the tuberculosis clinician should continue to promote the service.

Hospitalization of the tuberculous should be greatly increased and improved, with the state subsidy being made available for maintenance of tuberculosis sanatoria. Those areas without hospital facilities will, under the bill, share in the beds already available in the six county institutions.

The sanatorium at Decatur was opened in November, 1935, and has done excellent work in providing modern treatment for the tuberculous of that whole area. Colbert County has taken advantage of the opportunity by purchasing equipment for five beds at the institution and by providing for their upkeep. The annual report of the institution shows that during 1936 there were 98 patients treated, and of these 71 received some form of surgical collapse. In addition to the patients from Morgan and Colbert Counties, pay patients were admitted from ten other counties in the area. The clinician in charge of the clinics in North Alabama makes his headquarters at Decatur, but serves the whole area from this point. A monthly clinic, for example, is held at Cullman and an extensive out-patient clinic is maintained at the institution. As an example of what may be accomplished with a limited number of beds, this institution sets an enviable record.

This department, with the TVA cooperating, has attempted by a rather intensive educational program in the TVA area to open the small sanatorium at Scottsboro. Opening plans have been delayed, however, pending the state subsidy monies being made available.

*Epidemiologic Studies of Tuberculosis*: The United States Public Health Service, in cooperation with the Tennessee Valley Authority and the State Health Departments of Alabama and Tennessee, following the demonstration by Lumsden and Dauer (Public Health Bulletin No. 225, U. S. Public Health Service) of the high death rates from tuberculosis in Tennessee and Kentucky as compared with the U. S. Registration Area as a whole and, especially, with the South Alabama and similar coastal plain territory in adjoining states, has undertaken a study of a representative county in each area to determine what conditions are responsible for this phenomenon.

Coffee County, Alabama, with a white death rate for the five year period, 1929 to 1933, of 13.1 and a colored rate of 54.6 per 100,000 was selected to represent the low rate area, and Giles County, on the Tennessee side of Limestone County, Alabama, with white and colored rates of 120.3 and 208.9 per 100,000, respectively, was chosen for the high rate county.

The plan of the survey is to make a complete house to house canvass in the two counties for the purpose of: 1. Confirming the statistical inference from the mortality figures that there is a significant difference in the amount of tuberculosis in the two areas; 2. Developing a general picture of the environment, habits, diet, general amount of sickness and medical attention in the two areas as the first step in a detailed study to discover the reasons for this regional distribution.

Field work with a corps of specially trained

nurses was begun in each county on July 27, 1936, and by March 1, 1937, about one fourth of the homes in Coffee County and one third of the homes in Giles County had been canvassed. Preliminary tabulations of the data indicate that there is a significant difference in the amount of tuberculosis in the two localities, and that there is no difference in general economic conditions, occupation, diet, etc., to explain it on the usually accepted basis.

Detailed studies of certain environmental factors are already under way. Daylight recorders in each area are measuring the amount of radiation from sunlight. Analyses of water supplies in the two regions, in order to determine differences in chemical composition, have been commenced. Similar studies on representative foods common to the two areas will soon be begun.

The problem is large, and the ramifications of the environmental study are endless, but its solution may uncover unlooked for methods and aids for the control of tuberculosis.

## Bureau Of Laboratories

### DIAGNOSTIC DIVISION

The Bureau of Laboratories examined the largest number of specimens in 1936 since its establishment. During this year 360,139 specimens were received and results of the examinations were reported to practicing physicians and health officers throughout the state.

The number 360,139 specimens for 1936 exceeds the next highest year, 1935, by 32,428, or 6.8%. The continuation of the extensive intestinal parasite survey that was begun in 1934 accounted for the greatest increase in diagnostic specimens. For the year 1935 the laboratories examined 106,279 fecal specimens for intestinal parasites. The year 1936 showed an increase of 33,187, or 21.2% in the number of these specimens received. Ova counts were made on all positive fecal specimens where sufficient feces was available. In 1935 ova counts were reported on 3,251 specimens, while in 1936 ova counts were made on 9,413 specimens, or 6,162 more than was done the previous year. This time-consuming procedure placed a great additional burden on the personnel of the Central Laboratory.

A comparison of the total number of specimens, other than intestinal parasites examined in 1935 and 1936, shows that there was an increase in the number of the following: diphtheria cultures for diagnosis, diphtheria cultures for contact and release, bloods for agglutination, bloods and spinal fluids for Wassermann and Kahn tests, and pus smears for gonorrhea. Blood smears for malaria showed a decrease of 15,152 as compared to the year 1935. This does not indicate a lowered incidence of malaria nor a lack of appreciation on the part of the practicing physician as to the value of an accurate laboratory diagnosis in malaria, but is explained by the fact that blood surveys proportionate to the ones of 1935 were not carried out. It is especially gratifying to notice an increase in the number of blood specimens submitted for agglutination tests and culturing. This indicates that the general practitioner is becoming more and more alert to the advantages offered by the laboratory in assisting in the diagnosis of obscure fevers. The number of animal heads submitted to be examined for rabies showed a further decrease of 304 over 1935. It is particularly interesting to note that a greater part of this decrease in the number of heads submitted was in the area served by the Birmingham laboratory. During 1935 this laboratory examined 647 heads; during 1936 they examined 484 or a decrease of 163 heads. This is probably due to the rigid control measures adopted and carried out for several months of the year 1934. In contrast to this, a very noticeable increase in the number of animal heads examined by Mobile laboratory is shown. During 1935 60 heads were examined, and during the year 1936, 173 heads were examined; an increase of 113 over the previous year. The total number of blood specimens submitted for the Wassermann and Kahn tests during the year 1936 showed an increase of 12,106 over 1935. The specimens submitted for these tests should markedly increase, as the contemplated state wide venereal disease program gets under way. Darkfield equipment for the early diagnosis of syphilis is being added at certain strategic points. The number of microscopic smears examined for tubercle bacilli was approximately the same as for 1935. No new activities were carried out in this field that were not in operation during the preceding year. The number of nasopharynx cultures for the meningococcus showed a marked decrease over the year 1935, since no outbreaks of epidemic proportions were experienced during the year.

### VACCINE DIVISION

The following biologics and chemicals were made and distributed during the calendar year 1936:

| | |
|---|---|
| Typhoid vaccine | 763,260 cc. |
| Rabies vaccine (complete treatments) | 4,036 |
| Alum precipitated diphtheria toxoid | 107,170 cc. |
| Schick toxin | 5,890 cc. |
| Tuberculin | 392 cc. |
| Sterile distilled water | 274,350 cc. |
| Mercury benzoate | 12,000 cc. |
| Bacterial antigens for diagnostic use | 20,000 cc. |
| Normal saline | 44,650 cc. |
| Silver nitrate ampules | 61,100 |

There was a slight decrease in the amount of some of these products over the preceding year. This decrease is not especially marked, as the use of these biologics always fluctuates according to the county organizations in operation. With the organization of new county units and the placing of all units on a more stable basis, the demand for biologic products will greatly increase. There was an increase in the distribution of Schick toxin over the previous year. While there seems to be a general increase in the use of this product throughout the state, certain research activities of the department will likely account for this. The amount of sterile distilled water distributed during the year shows a noticeable increase over preceding years, which increased demand will likely continue.

The number of rabies treatments distributed during 1936 shows a decrease of 1,002 as compared to 1935. As stated above the greater part of this decrease in the demand for this particular product has been in the Birmingham area, and was likely due to the rigid dog control and vaccination meas-

ures instituted by the City of Birmingham during several months of 1934. A marked drop in the demand for treatments occurred immediately following the institution of these control measures in this district; however, there has been a gradual rise since the death of the ordinance, which was repealed because it conflicted with the state statute. With the enforcement of the state-wide rabies control law, recently enacted by the legislature, the outlook should be promising that there will be a further and encouraging reduction. While there was a decline in the demand for rabies treatments in the Birmingham area in 1936, there was an increased distribution in and around Mobile. Practically the whole southern portion of the state showed increased demands over previous years.

No radical changes in either equipment or methods were made in the Vaccine Division during the year. Although it is realized that one of the first steps usually taken in expanding field activities is the mass immunization of the population in the area served, it is felt that this division is now adequately equipped to supply such products as will be needed for a wholesale expansion.

RESEARCH AND INVESTIGATION

A public health laboratory occupies a position that is particularly advantageous for research and investigation in communicable diseases, in so far as material for study is concerned. Realizing the necessity for this important phase of public health work, the Bureau of Laboratories considers research projects a necessary part of its program.

*Diphtheria*: Since there have been differences of opinion as to the efficacy and the duration of immunity produced by diphtheria alum precipitated toxoid, a research project of considerable magnitude has been carried out in Alabama during the year 1936. As the question of duration of immunity produced by this biologic was under discussion, it was felt that, since the product was first used in this state, the duration of immunity could best be ascertained by determining the antitoxic content of the blood of children that first received the product and comparing this to their present Schick status. As a preliminary to the laboratory work, a member of the staff of the National Institute of Health was loaned to the laboratory to carefuly check the methods used in the titration for antitoxin so that the results would be comparable to those obtained by other workers. Approximately 1400 bloods of children were titrated for antitoxin content. The results of these investigations will be published shortly.

Additional studies have been carried on during the year in the further refinement of alum precipitated toxoid. Investigations were made in an effort to determine the causes of abscess formation at the site of injection, which sometimes happens with this product.

Since it was thought that the diphtheria carrier rate in Alabama might influence the duration of the immunity induced by alum precipitated toxoid by superimposing a naturally acquired immunity, carrier surveys were made in several counties. It was decided to take cultures from a thousand school children in each. So far four counties have been completed, and the results show that the carrier rate is approximately the same in all, but the number of virulent cultures varied widely from county to county. The number of arivulent strains which have been isolated has been large. Incidentally all cultures were isolated, run through sugars and the virulence tests made with the pure cultures. It is intended to continue this work on a larger scale and make more antitoxin titrations and Schick tests, in conjunction with carrier surveys.

Work has continued on a proper medium for the isolation of the diphtheria bacillus. The one which has given the best results has a filtered broth base and has been used successfully in the carrier survey.

*Malaria*: No definite research on malaria has been accomplished this year. The Bureau of Laboratories loaned a technician to the T. V. A. to assist in a survey of eight counties in North Alabama. This was a continuation of the work which has been pursued each fall in this area for the past few years.

*Intestinal Parasite Survey*: The extensive intestinal parasite survey which was begun two years ago is still in progress. It is expected that all counties will have been reached by the end of this school year. A total of over 250,000 specimens have already been examined and ova counts run on all positives where sufficient fecal material was available. The comparison of the two anthelmintics, tetrachlorethylene and the combination of oil of chenopodium and carbon tetrachloride, has been completed with the results that the latter proved much more efficacious. Arrangements have been made to try hexylresorcinol in the form of caprokol pills. Inasmuch as this drug is non-toxic, it will be used on all worms and compared with the combination oil of chenopodium and carbon tetrachloride on hookworm. A large amount of hexylresorcinol has already been distributed.

In one institution a pin worm survey has been made using a new technic. The results have been most gratifying showing that the salt flotation method is of little value in the diagnosis of oxyuris. It is planned to use caprokol pills and a rectal jelly containing hexylresorcinol in an attempt to cure the positives.

*Rabies*: During the past year an extensive statistical study was made of the rabies deaths which have occurred in Alabama from 1922 until the summer of 1936. For that period 42 were recorded. Curiously enough 21 of those had received vaccine and 21 had not been treated. Data were secured concerning the location and severity of the bite, the biting animal, the days elapsing after the wound was inflicted and the beginning of treatment, when given, and other pertinent facts. The three cases of vaccine paralysis were also investigated.

With the assistance of the Rockefeller Foundation an extensive program of field studies on rabies has been initiated. A laboratory building with outside kennels has been constructed at Kilby and a member of the Foundation staff has been assigned to direct the work. Preliminary studies and the training of the personnel have already commenced at the Rockefeller Institute in New York. The first efforts will be directed towards an improvement in the diagnostic methods now employed,

and evaluation of the human and canine vaccines. With a new tissue culture virus now available it is hoped that more efficacious vaccines may be evolved.

*Typhus Fever*: The Typhus Fever Laboratory, which is maintained by the U. S. Public Health Service at Mobile has continued its studies. Various wild animals have been examined, and an attempt is being made to isolate the virus from human cases. The Bureau of Laboratories has collaborated by sending bloods and reporting persons having positive Weil-Felix reactions.

*Serologic Tests*: The Bureau of Laboratories was included in the check testing of serologic methods carried on by the U. S. Public Health Service. In all, thirty laboratories participated. Sufficient serums were sent for 300 Wassermanns and 300 Kahns. The results as far as this laboratory were concerned are most gratifying.

## Bureau Of Hygiene And Nursing

### PERSONNEL

A pediatrician, two clerks, two advisory nurses, and two special nurses were added to the personnel of the bureau. Thirty-two nurses, three part-time pediatricians, two part-time obstetricians, seventeen part-time physicians and five part-time dentists were added to the personnel of twenty-six county health units. The addition of this personnel to the staff of the bureau and the staffs of the health units was made possible with the funds allocated to Alabama from the appropriation made by the Social Security Act.

### DIVISION OF CHILD HYGIENE

The pediatrician was added to the staff of the bureau on May 18, 1936 as chief of the Division of Child Hygiene. His duties are to inaugurate pediatric conferences, establish pediatric consultative service for practicing physicians throughout the state and to be available for the presentation of papers before county and state medical organizations. He also advises state and county health personnel regarding child health work, and makes talks on child health to lay organizations at the request of local health officers.

The pediatrician's activities are exerted primarily and principally with the medical profession of the state. Wherever clinical material is available, and patients are brought by physicians to the meetings of county medical societies, clinics are held in the interest of those in attendance.

With the period ending December 31, the pediatrician had made one hundred and twelve visits in forty-one counties, and attended three division meetings of the State Medical Association.

During the epidemic of poliomyelitis in the summer and early fall months the regular schedule of visits to counties was discontinued and the time devoted to service in the northern counties of the state in an effort to be of service to physicians in the prophylaxis of the disease, and the care of patients already afflicted.

### DIVISION OF NURSING

Two hundred twenty-one field visits were made by the advisory nurses to assist staffs of county health units in their programs. The activities of the advisory nurses when making field visits into the counties involve: (1) conferences with health officers and nurses in technique of nursing procedures, (2) introduction of procedures that have proven to be practicable in Alabama counties, (3) aid to personnel in record keeping and filing. They also assisted in the health education program, and attended the eleven district conferences held with county health personnel during the month of December.

The epidemic of poliomyelitis that prevailed in the northern counties of the state for three and one half months during the summer caused some disruption in the programs of the advisory nurses.

The nurse-midwife field advisor remained on the staff through the month of January. She held midwife group conferences with the county health nurses and midwives in attendance.

The activities of one of the two special nurses include hookworm surveys in three counties that have no county health units. She sent approximately seven thousand specimens to the laboratory for examination. Treatments were sent to all who were found to be infested.

The activities of the second special nurse are discribed under the section of "Activities for Control of Poliomyelitis."

The activities of the colored nurse who accompanies the Movable School of the Tuskegee Institute are:

Frequent conferences—State Health Department.
Nursing assistance during the annual medical and surgical clinics held at the John A. Andrew Memorial Hospital, Tuskegee.
Nursing assistance and health classes during the annual meeting of the 4-H Club boys and girls.
Talks and demonstrations at Sessions of Movable School in twenty counties.

*Activities For Control Of Poliomyelitis*: A special nursing program was begun on July 28th to combat the spread of poliomyelitis in the ten counties having no county health units. A supervisory nurse was placed in direct charge of the program. Two nurses were assigned to each of the ten counties to administer the picric acid-alum spray without charge to those who wished it and to stimulate interest in its general and correct use.

The latter part of August, due to a decline in clinic attendance, it was decided to utilize the nurses' additional time by holding joint weekly spray and typhoid inoculation clinics.

Fifty-six supervisory visits were made by the supervisory nurse to the nurses in the ten unorganized counties. Fifty-seven thousand three hundred persons received the spray treatments applied by the W. P. A. nurses in the ten counties.

Eleven thousand six hundred fifty persons received the complete series of three typhoid inoculations.

From July 24th to October 3rd, the United States Public Health Service assigned an orthopedic nurse to the state to work with the post-poliomyelitis paralytic cases in an effort to prevent permanent crippling as much as possible. On September 30th the Rehabilitation Division of the Department of Education appointed an orthopedic nurse to take over the activities begun by the nurse loaned from

the United States Public Health Service. Grading of paralyzed muscles, instruction in use of splints, and advice regarding nursing care were given by the orthopedic nurse.

*County Health Nurses*: Ninety-eight nurses were on duty with the fifty-seven county health units January 1, 1936. At the end of the year there were one hundred thirty staff nurses with the county health units. The addition of nurses was made possible through the funds made available in the Social Security Act for Maternal and Child Health Services. Practically all of the nurses render a generalized health nursing service.

STUDY

The director of the bureau was granted a leave of absence for one month for the purpose of visiting several state health departments to make observations and study programs of activities. This was made possible by a travel grant of the Rockefeller Foundation. The nurse-midwife, who was field advisor in the midwife control activities during previous years, was granted a leave of absence for one year beginning February 1st in order that she might attend Teachers' College at New York. A fellowship was granted to her for three months of this period.

The pediatrician was granted permission to attend the Southern Pediatric Seminar at Saluda, North Carolina and the annual meeting of the Georgia State Pediatric Society at Atlanta.

One advisory nurse from the state staff and one county health nurse were granted leaves of absence with fellowships for nine months beginning September 16th in order that they might attend Teachers' College for postgraduate work in public health nursing. A second county health nurse was granted a leave of absence for nine months to attend Teachers' College and was given a fellowship for three months during that period.

Sixteen nurses were granted scholarships for periods of three months to receive postgraduate training in public health nursing at Peabody College. Eleven of these trainees spent six weeks in Jefferson County making field observations after completing their studies at Peabody. Six of the trainees were members of county health unit staffs.

One county health nurse was granted a leave of absence for six weeks to attend the Nurse Training Course at the University of Alabama June 6th-July 19th.

PUBLIC HEALTH EDUCATION

Recognizing the very great importance of public health education the personnel of this bureau has carried on a continuing program of activities in this field through the year. During the current year, the director of the bureau and his assistants have made twenty-six talks before interested lay groups and prepared fifteen radio talks bearing on general health topics and particularly those dealing with child health and the school.

## Bureau Of Sanitation
## Division Of Engineering

PERSONNEL

The Division of Engineering has a director, three assistant sanitary engineers, a doctor in charge of typhus control, a draftsman, and two secretaries on the state budget. Through funds made available the department has one assistant director and three district engineers. Two engineers from the department are attending Harvard University for postgraduate work in sanitary engineering. These scholarships were made possible through the Social Security Act.

ACTIVITIES

The Division engages in the following activities:

(1) Public water supplies and sewage,
(2) Malaria control,
(3) Sanitation,
(4) Typhus control,
(5) Drafting,
(6) Miscellaneous.

WATER SUPPLIES AND SEWAGE

The municipalities of the state spent $640,000.00 on new plants or extensions to their water and sewerage systems. Consultation services to the professional engineers employed by the municipalities, and checking and approving final plans and specifications for twenty-seven water projects and fourteen sewer projects required a great deal of the time of the director and one engineer.

In order to conserve time and travel, the itineraries for the engineers' field visits to the water plants are prepared in advance. Plans are arranged whereby each plant is visited from one to three times each year by an engineer. A total of two hundred thirty-seven inspections at two hundred thirty-one public water supplies were made. These supplies serve 40.8% of the total population of the state. Resulting from the field visits improvements were made at thirty-six plants. Twenty-three inspections to sewer projects were made for the purpose of preliminary surveys, field consultation, offering operating suggestions or making recommendations toward eliminating nuisances.

MALARIA CONTROL

State-wide malaria control projects inaugurated during the summer of 1935 through the W. P. A. were continued. Machines for drainage were operated in two counties and through the demonstration other counties should undertake drainage on a large scale after comprehensive study and engineering work has been made. Under the W. P. A., also, twenty-three counties operated projects with hand labor and completed fifty-six drainage projects. The citizens in these counties were educated on the importance of malaria control and are becoming malaria conscious.

Artificially impounded waters required much effort, involving twenty-five visits to large projects and one hundred twenty-nine inspections to smaller projects.

SANITATION

The sanitation accomplished was effected to a greater extent through the increased personnel of county sanitation officers. With funds made available by the Social Security Board, forty of the fifty-six organized counties in health work have secured the services of trained sanitation officers.

The state-wide sanitation project with W. P. A. labor inaugurated in 1935 was continued along

with the malaria control project. Thirty-three counties had sufficient labor available to take advantage of the project, with the county sanitation officers giving technical direction and acting as supervisors. Six hundred seventy all-steel school privy houses were fabricated and furnished the county boards of education by the A. R. A. and W. P. A. The county school authorities furnished the materials for the sub-structures, including the pit curbing, concrete slabs and cast iron risers. A large number of these privies were completed and are now in service. During the year the sanitation officers approved three thousand six hundred fifty-one (3,651) privies, eight hundred sixty-six septic tanks and six hundred sixty-four sewer connections, serving a total population of thirty-three thousand three hundred sixty-eight (33,368).

Through organized efforts of the county sanitation officers and with the direction of the division the municipalities are assuming the responsibility of their pit privy problem along with their sewer system, the installation of the pit privies being an integral part of their excreta disposal system. The homes, from economic or physical conditions, that require pit privies or septic tanks should be assisted by municipal powers of financing the same as others served by the sewer. After being released from this responsibility in the municipalities the sanitation officer may devote more of his time to rural sanitation.

Cooperative purchasing of materials and installation of pit privies in the rural area are being promoted with the aid of other agencies in the county. This planning of programs by the sanitation officers with the assistance of the division and the district engineers should materially increase the number of installations during the years to come.

TYPHUS CONTROL

To properly control typhus fever, it is necessary to eliminate both the infected host and the carrier. Through the cooperation of the W. P. A. a campaign of rat extermination and rat proofing was inaugurated in four counties. As a result of the projects set up by these counties and through an educational program by the press and by talks over the radio, to civic clubs, high schools. real estate boards, grain dealers, and other organizations, fifty-five buildings were rat proofed and seventy thousand (70,000) rats destroyed. The department made recommendations to the P. W. A. and W. P. A., setting out the modern methods of rat-proofing for all public buildings constructed by them.

DRAFTING

Drafting work for the Bureau of Sanitation and other bureaus of the State Department of Public Health was carried on. The volume of this routine drawing increased somewhat over that of 1935. In addition, plans were drawn and estimates made for a group of buildings to house the personnel conducting the special study in rabies control undertaken by the health department with the aid of the Rockefeller Foundation.

## Bureau Of Sanitation
### Division Of Inspection

The activity of the Division of Inspection, measured on the basis of numerically recorded inspections, was 18.7% greater in 1936 than in 1935, a total of 15,620 inspections having been made. Marked increases in the numbers of inspections were made in the cases of eating places, soda founts, bakeries, ice cream plants (counter freezers), fair and carnival concessions, crab meat pickeries, barber shops, and beauty parlors. Decreased numbers of inspections were made of hotels, abattoirs, oyster shuckeries, dairies, and milk plants.

A total of 273 inspections were made in Florida, Georgia, Mississippi, and Tennessee. After July 1, 1936, the operators of establishments in these states shipping products into Alabama were charged the proportionate share of the cost of such inspection trips, when satisfactory arrangements for local inspection service could not be made. The total sum collected for this out-of-state inspection service during the last six months of the year was $274.62.

It should not be necessary for inspectors of this state to go into other states to ascertain that food products are manufactured under proper sanitary conditions to assure their safety for Alabama consumers. But when neighboring states cannot give this assurance, the possibility that they may be unsafe cannot be totally ignored. Effort is now being made to interest the U. S. Public Health Service in the development of an organized and integrated program of state inspection activities, which will enable us to accept the certification of the authorities of any state from which foods and beverages are received that the manufacturing establishment complies with accepted standards of sanitation.

As a result of the application of the regulations adopted in June, 1935, the Alabama crab meat industry had the best and most profitable season in 1936 ever experienced. Crab meat was shipped into the northern markets, and rated very highly as to quality. However, the Food and Drug Administration of the U. S. Department of Agriculture made a survey of crab meat picking operations throughout the Gulf Coast in the summer of 1936, and suggested improved methods and more rigid regulations. These regulations have been carefully studied by the inspection officials of Louisiana, Mississippi, and Alabama, and an understanding regarding uniformity reached. These regulations will shortly be submitted to the State Committee of Public Health for adoption, so that free commerce in this product between these three states can take place.

The crystallization of the policy of vesting fuller responsibility for inspection activities in the county health departments, which will release the inspection staff for new fields of activity, has emphasized the need for clarification and modernization of the regulations governing the operations conducted in the various types of establishments to be inspected. Such regulations will also be submitted to the State Committee of Public Health for adoption as rapidly as they can be formulated.

## Bureau Of Vital Statistics

During the first half of 1936 the permanent index of births and deaths, begun in 1935, was completed. We now have a permanent index in bound

form covering the sixteen year period (1908-1933) for both births and deaths; also a temporary card index for the three year period (1934-1936). Such an index is of invaluable assistance to the Bureau of Vital Statistics.

As in 1935, the payment of warrants issued to local registrars for their services in 1936 has not been as complete or as prompt as it should be. We cannot expect local registrars to serve for nothing and considerable difficulty is being experienced in securing persons who are willing to act as registrars on that account. The fee of twenty-five cents allowed the registrar by law for each certificate is too small. In many instances it does not cover the cost of securing the certificate.

Efforts to improve this situation were made in the 1935 session of the legislature. A bill was introduced providing for a special central state fund for the payment of local registrars. It was thought that with the creation of such a fund, payment could be made promptly and in full. The bill was killed in committee. A new bill was introduced in the first special session of the legislature in 1936, raising the order of the claim which the local registrars have against the county. It was passed and the payment of local registrars was put in Class Four. Previously it was not listed in any specific class. It is hoped that by so doing the future payment of local registrars will be more prompt and in full.

Attention is called to the fact that, of the Southern States, North Carolina, Georgia and Texas are now paying fifty cents for each certificate of birth and death filed—twice the amount paid in Alabama. Mississippi pays fifty cents under certain circumstances. Local registrars must not only be paid promptly, but more per certificate if we are to secure the proper registration of our vital statistics.

In the same session of the legislature a bill was introduced requiring the registration of the original licenses and certificates of marriage with the Bureau of Vital Statistics at Montgomery. Its passage was secured.

It is important that certificates of marriage be registered in the Bureau of Vital Statistics. In most of the counties such records are not protected against fire hazards. They are not readily available; in some instances no systematic index is kept. Previously, it was necessary to search for a record of marriage in many counties before finding it; now all original certificates of marriage issued subsequent to August 1, 1936, may be quickly found in the Bureau of Vital Statistics of the State Board of Health. This will be welcomed by the legal profession in searching for records of marriage. Such records are also of value in correcting birth certificates where originally the birth had been reported as illegitimate but had subsequently been legitimatized through marriage. From a statistical standpoint, marriage records will prove helpful in obtaining a more complete understanding of the birth statistics.

Provisional figures show that in 1936, there were issued 3,800 certified copies of certificates of birth and death—the greatest number of record in any single year. More than 43,000 searches were made of the records of birth and death; 84,000 notifications of birth were mailed to parents; 30,000 certificates were corrected; 22,000 queries, requesting information for the completion or correction of certificates, mailed. The exact number of pieces of mail sent out is not known, but it is estimated that it would exceed 175,000.

In cooperation with the Bureau of Preventable Diseases, many thousand records of cases of hookworm were transcribed, preparatory to making a mechanical tabulation of facts secured in the statewide hookworm survey. In cooperation with the Rockefeller Foundation, in its study of tuberculosis at Opelika, the information secured was transcribed for tabulation purposes. The demand for statistical service is increasing annually. One of the primary functions of the Bureau of Vital Statistics is to render statistical service.

The vault, located in the Bureau of Vital Statistics, will soon be filled and a new vault or an enlargement of the present one secured within the next two years. It is overcrowded at the present time, a stack having been built in the last space available, the center aisle. Additional storage space must be found soon for the tabulation punch cards, which continue to accumulate annually. These cards must be kept indefinitely and should be housed in a fireproof room.

A new form for filing delayed birth certificates was introduced in 1936. This makes it easier to pick out such certificates and reduces the amount of filing space previously required for supporting affidavits, etc.

*The report of the Board as a State Committee of Public Health was approved; whereupon, on further motion, the report was adopted as a whole.*

## REVISION OF THE ROLLS

The next order of business being the revision of the rolls of the Association, the Secretary was directed by President Noland to proceed without interruption in the absence of objection. As a preface to the revision of the Roll of County Societies, the Secretary said:

> "County Medical Societies, to comply with the Constitution, must meet certain obligations. First, an annual report, on forms furnished by the Association, must be filed with the Secretary; second, each society is expected to be represented at the annual meeting by at least one delegate; third, fees must be paid to the Treasurer of the Association for each delegate to which the society is entitled; and, fourth, dues are to be remitted to the Treasurer for each member."

With this foreword, the revision proceeded.

1. *Revision of the Roll of County Societies*:

(a) County societies which have fulfilled all their constitutional obligations: Autauga, Barbour,

Bibb, Blount, Bullock, Butler, Calhoun, Chambers, Cherokee, Chilton, Choctaw, Clay, Coffee, Colbert, Conecuh, Coosa, Crenshaw, Cullman, Dale, Dallas, DeKalb, Elmore, Escambia, Etowah, Fayette, Franklin, Geneva, Hale, Houston, Jackson, Jefferson, Lamar, Lauderdale, Lawrence, Lee, Limestone, Lowndes, Madison, Marengo, Marion, Marshall, Mobile, Monroe, Montgomery, Morgan, Perry, Pickens, Pike, Randolph, Talladega, Tallapoosa, Tuscaloosa, Walker, Washington, Wilcox, Winston—Total 56.

No objection being made as to the correctness of this report, the President directed that these societies be passed as clear on the books.

(b) County societies partially delinquent: In that they are not represented by delegates at this meeting of the Association—Baldwin, Clarke, Cleburne, Greene, Henry, Macon, Russell and Sumter; for failure to remit required dues for delegates—Clarke, Cleburne, Covington, Greene and St. Clair (also county dues); for failure to submit annual report—Russell and Shelby.

No objection being offered as to the correctness of this report, the President directed that these societies be passed, with the understanding that the Secretary and Treasurer make an effort to collect outstanding dues.

(c) County societies totally delinquent: None.

Thereupon the Secretary said: "In revising the Roll of the College of Counsellors, five lists are prepared, designated respectively :(1) The schedule of counsellors clear on the books in regard to attendance and dues; (2) the schedule of delinquent counsellors—counsellors delinquent in attendance or dues, or against whom charges may be pending; (3) The schedule of miscellaneous counsellors—counsellors who have died since the last annual meeting, or have offered their resignation, or have moved out of the State, or out of their respective congressional districts; (4) the schedule of active counsellors of twenty years' standing, and (5) the schedule of counsellors-elect who have qualified as provided in the Constitution."

With such preface, the revision was continued.

2. *Revision of the Roll of Counsellors*:

(a) Counsellors clear on the books: Abernethy, Acker, Alison, J. F., and S. B., Anderson, Ashcraft, Beard, Bedsole, Burdeshaw, Caldwell, Cannon, Carter, Chenault, E. M., Craddock, Cryer, Dabney, Dowling, Eskew, Garber, Gilder, Gragg, Granger, Greer, Gresham, W. A.; Hagood, Hatchett, Hayes, C. P., and J. P., Hill, R. L.; Hodges, Hollis, Howell, Hubbard, Jackson, James, Jordan, Leach, Ledbetter, Lester, Lewis, Lightfoot, Long, Lull, Martin, J. A., Mason, E. M., and J. M., Mayer, McAdory, McCall, Moore, Newman, Noland, Nolen, Oswalt, Parker, Perdue, Price, Ralls, Redden, Riser, Rountree, Rucker, Salter, Scarbrough, Scott, Searcy, Shropshire, Sledge, Smith, G. R., and R. A.; Tankersley, Taylor, Thacker, Thomas, Tillman, Waldrop, Walker, Walls, Walsh, Welch, Weldon, White, Wilkerson, Williams, Wood, Wright.

In the absence of objection, the President ordered passed the names of these counsellors reported as clear on the books:

(b) Delinquent Counsellors: J. L. Shamblin is delinquent in attendance.

(c) Miscellaneous Counsellors:

(1) Life Counsellors who have died: A. D. James and F. P. Pettey.

(2) Active Counsellors who have died: E. B. Bailey, Joel Chandler, M. W. Dupree, Samuel Kirkpatrick and J. B. Moxley.

(3) Active Counsellors who have moved: None.

(4) Active Counsellors who have resigned: None.

(5) Active Counsellors of twenty years' standing: P. V. Speir, F. L. Chenault and J. C. Martin.

(6) Counsellors-Elect who have properly qualified: T. H. Appleton, E. T. Brunson, G. S. Graham, R. C. Hill, J. V. Howell.

The President directed that the name of Dr. J. L. Shamblin be stricken from the roll; that the names of deceased counsellors be transferred to the Book of the Dead; that Drs. Chenault, Speir, and Martin be added to the Roll of Life Counsellors; and that the names of the counsellors-elect be added to the Roll of Active Counsellors.

3. *Revision of the Roll of Correspondents*:

Dr. Frank H. Lahey, the 1937 Jerome Cochran Lecturer, was added to the Roll of Correspondents.

4. *Revision of the Roll of Officers*:

Dr. E. S. Sledge, Mobile, was elected President; Dr. A. B. Coxwell, Monroeville, was elected Vice-President of the Southwestern Division, and Drs. T. Brannon Hubbard and W. D. Partlow were elected Censors for five years, succeeding themselves. Dr. Lloyd Noland was elected a Censor to fill the unexpired term of Dr. Walter F. Scott, resigned.

Committees constitutionally provided to nominate counsellors brought in the following nominations: 1st District—Drs. P. J. M. Acker, D. T. McCall, W. A. Stallworth; 2nd District—L. V. Stabler, C. K. Weil; 4th District—C. W. C. Moore; 6th District—C. T. Acker, H. B. Searcy; 7th District—E. T. Brown, J. S. Hollis; 8th District—J. O. Belue,

C. A. Grote; 9th District—M. Y. Dabney, B. S. Lester, C. W. Shropshire, A. A. Walker.

The ballot of the Association was cast for these nominees by the Secretary.

## Miscellaneous Business

Mobile was chosen as the 1938 meeting place.

Resolution was adopted conveying the Association's appreciation of courtesies shown it during the session.

President Sledge and other newly chosen officers were presented, whereupon the Association was declared adjourned.

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## THE ROLL OF COUNSELLORS

### REVISION OF 1937

#### LIFE COUNSELLORS

| Name and Address | Date of Election |
|---|---|
| Andrews, Glenn, Montgomery (2) | 1893 |
| Baker, J. N., Montgomery (2) | 1905 |
| Betts, William Frank, Evergreen (2) | 1904 |
| Bondurant, Eugene DuBose, Mobile (1) | 1894 |
| Britt, W. S., Eufaula (3) | 1905 |
| Brothers, Thomas J., Anniston (4) | 1914 |
| Cameron, Matthew Bunyan, Eutaw (6) | 1893 |
| Chenault, Frank L., Decatur (8) | 1917 |
| Crutcher, John Sims, Athens (8) | 1915 |
| Cunningham, William Moody, Jasper (7) | 1912 |
| Davie, Mercer Stillwell, Dothan (3) | 1904 |
| Faulk, William M., Tuscaloosa (6) | 1913 |
| Givhan, Edgar Gilmore, Montevallo (6) | 1903 |
| Gordon, Samuel A., Marion (6) | 1913 |
| Gresham, George L., Andalusia (2) | 1913 |
| Guice, Charles Lee, Gadsden (5) | 1899 |
| Harper, Wm Wade, Selma (4) | 1902 |
| Harris, Seale, Birmingham (9) | 1903 |
| Harrison, William Groce, Birmingham (9) | 1896 |
| Heacock, Jos. D., Birmingham (9) | 1912 |
| Heflin, Howell T., Birmingham (9) | 1914 |
| Heflin, Wyatt, Birmingham (9) | 1893 |
| Hendrick, Walter Branham, Hurtsboro (3) | 1915 |
| Hill, Luther Leonidas, Montgomery (2) | 1888 |
| Hill, Robert Somerville, Montgomery (2) | 1898 |
| Howle, James Augustus, Hartselle (8) | 1895 |
| Jones, Capers Capehart, East Lake (9) | 1881 |
| Lupton, Frank A., Birmingham (9) | 1913 |
| Martin, James Cordie, Cullman (7) | 1917 |
| McCain, William Jasper, Livingston (6) | 1898 |
| McElrath, William Sparke, Cedar Bluff (5) | 1908 |
| McLeod, John Calvin, Bay Minettte (2) | 1911 |
| McLester, James Somerville, Birmingham (9) | 1913 |
| Mohr, Chas. A., Mobile (1) | 1909 |
| Morris, William E., Georgiana (2) | 1913 |
| Partlow, William Dempsey, Tuscaloosa (6) | 1909 |
| Prince, Edward Mortimer, Birmingham (9) | 1909 |
| Ray, Jacob Ussery, Woodstock (6) | 1906 |
| Sankey, Howard J., Nauvoo (7) | 1914 |
| Speir, Phillip V., Greenville (2) | 1917 |
| Talley, Dyer Findley, Birmingham (9) | 1902 |
| Thigpen, Charles Alston, Montgomery (2) | 1900 |
| Ward, Henry Silas, Birmingham (9) | 1915 |
| Wilkinson, David Leonidas, Birmingham (9) | 1902 |

Total 44

#### ACTIVE COUNSELLORS

Those marked with a † are serving last terms of six years.

Those marked with an asterisk (*) are serving second terms of seven years.

Those without a symbol are serving first terms of seven years.

The numeral is the number of the congressional district.

| | Date of Election | Date of Expiration |
|---|---|---|
| Abernethy, Floyd L., Foley (2) | 1933 | 1940 |
| Acker, Paul Jerome Morris, Mobile (1) | †1937 | 1943 |
| Alison, James F., Selma (4) | 1934 | 1941 |
| Alison, Samuel Blakemore, Minter (4) | †1933 | 1939 |
| Anderson, Thos. J., Greensboro (6) | 1933 | 1940 |
| Appleton, Thomas H., Collinsville (5) | 1936 | 1943 |
| Ashcraft, Virgil Lee, Reform (7) | †1933 | 1939 |
| Beard, Robert Briggs, Troy (2) | 1932 | 1939 |
| Bedsole, James Goodman, Jackson (1) | †1936 | 1942 |
| Brunson, Emmett T., Samson (3) | 1936 | 1943 |
| Burdeshaw, Shelby L., Headland (3) | †1935 | 1941 |
| Caldwell, Edwin Valdivia, Huntsville (8) | †1932 | 1938 |
| Cannon, Douglas L., Montgomery (2) | *1935 | 1942 |
| Carter, William R., Repton (2) | 1934 | 1941 |
| Chenault, Erskine M., Decatur (8) | 1935 | 1942 |
| Craddock, French H., Sylacauga (4) | 1932 | 1939 |
| Cryer, George A., Anniston (4)§ | *1932 | 1939 |
| Dabney, Marye Y., Birmingham (9) | †1937 | 1943 |
| Dowling, Judson Davis, Birmingham (9) | †1936 | 1942 |
| Eskew, M. H., Uniontown (6) | 1934 | 1941 |
| Garber, James R., Birmingham (9) | 1932 | 1939 |
| Gilder, George S., Carbon Hill (7) | 1934 | 1941 |
| Gragg, Vincent Jones, Clanton (6) | †1935 | 1941 |
| Graham, Geo. S., Birmingham (9) | 1936 | 1943 |
| Granger, F. G., Ashford (3) | *1935 | 1942 |
| Greer, William H., Sheffield (8) | †1934 | 1940 |
| Gresham, Walter A., Russellville (7) | 1933 | 1940 |
| Hagood, M. H., Brewton (2) | *1931 | 1938 |
| Hatchett, Wm. C., Huntsville (8) | *1936 | 1943 |
| Hayes, Charles Philips, Elba (3) | †1934 | 1940 |
| Hayes, Julius Poe, Clanton (6) | †1934 | 1940 |
| Hill, Robert C., York (6) | 1936 | 1943 |
| Hill, Robert L., Winfield (7) | *1931 | 1938 |
| Hodges, Rayford, Scottsboro (8) | 1935 | 1942 |
| Hollis, Jonathan Shelton, Covin (7) | †1937 | 1943 |
| Howell, John V., Marion (6) | 1936 | 1943 |
| Howell, William Edward, Haleyville (7) | †1932 | 1938 |
| Hubbard, T. Brannon, Montgomery (2) | *1932 | 1938 |
| Jackson, Alva A., Florence (8) | †1932 | 1938 |
| James, Norman Gilchrist, Hayneville (2) | †1935 | 1941 |
| Jordan, Samuel E., Highland Home (2) | 1933 | 1940 |
| Leach, Sydney, Tuscaloosa (6) | †1934 | 1940 |
| Ledbetter, Samuel L., Jr., Birmingham (9) | 1935 | 1942 |
| Lester, Belford S., Birmingham (9) | †1937 | 1943 |
| Lewis, Walter A., Enterprise (3) | 1933 | 1940 |
| Lightfoot, Phillip Malcolm, Shorter (3) | †1932 | 1938 |
| Long, Clarence, Hurtsboro (3) | †1934 | 1940 |
| Lull, Cabot, Birmingham (9) | †1933 | 1939 |
| Martin, John A., Montgomery (2) | 1933 | 1940 |
| Mason, E. M., Birmingham (9) | *1931 | 1938 |
| Mason, James Monroe, Birmingham (9) | †1932 | 1938 |
| Mayer, Kossuth Aaron, Lower Peach Tree (1) | †1933 | 1939 |
| McAdory, Edward Dudley, Cullman (7) | †1934 | 1940 |
| McCall, Daniel T., Mobile (1) | †1937 | 1943 |
| Moore, David S., Jr., Birmingham (9) | 1932 | 1939 |
| Newman, Samuel Harris, Dadeville (5) | *1932 | 1939 |
| Noland, Lloyd, Fairfield (9) | *1936 | 1943 |
| Nolen, John A. M., Alexander City (5) | †1934 | 1940 |
| Oswalt, G. G., Mobile (1) | *1936 | 1943 |
| Parker, Lorenzo D., Andalusia (2) | 1933 | 1940 |
| Perdue, James D., Mobile (1) | 1933 | 1940 |
| Price, Albert Bascom, Cordo (7) | †1933 | 1939 |

§Deceased.

ACTIVE COUNSELLORS—Continued

| | Date of Election | Expiration |
|---|---|---|
| Ralls, Arthur W., Gadsden (5) | †1933 | to 1939 |
| Redden, Raymond Hollis, Sulligent (7) | *1933 | to 1940 |
| Riser, William H., Lafayette (5) | | 1935 to 1942 |
| Rountree, W. S., Wylam (9) | *1931 | to 1938 |
| Rucker, Edmon W., Birmingham (9) | †1936 | to 1942 |
| Salter, Wilbur M., Anniston (4) | | 1934 to 1941 |
| Scarbrough, B. C., Albertville (5) | | 1935 to 1942 |
| Scott, Walter F., Birmingham (9) | †1936 | to 1942 |
| Searcy, Harvey Brown, Tuscaloosa (6) | †1937 | to 1943 |
| Shropshire, Courtney William, Birmingham (9) | †1937 | to 1943 |
| Sledge, Edward Simmons, Mobile (1) | †1936 | to 1942 |
| Smith, Gordon R., Ozark (3) | | 1934 to 1941 |
| Smith, Russell Aubrey, Brewton (2) | †1932 | to 1938 |
| Tankersley, James, Prattville (4) | *1935 | to 1942 |
| Taylor, Woodie R., Town Creek (8) | *1932 | to 1939 |
| Thacker, Vincent J., Dothan (3) | | 1935 to 1942 |
| Thomas, Eugene Marvin, Georgiana (2) | †1934 | to 1940 |
| Tillman, John S., Clio (3) | | 1935 to 1942 |
| Waldrop, R. W., Bessemer (9) | *1936 | to 1942 |
| Walker, Alfred A., Birmingham (9) | †1937 | to 1943 |
| Walls, J. J., Alexander City (5) | *1931 | to 1938 |
| Walsh, Groesbeck, Fairfield (9) | | 1933 to 1940 |
| Welch, Stewart, Birmingham (9) | | 1934 to 1941 |
| Weldon, Joseph M., Mobile (1) | | 1935 to 1942 |
| White, Alexander L., Thomasville (1) | *1935 | to 1942 |
| Wilkerson, Fred Wooten, Montgomery (2) | †1933 | to 1939 |
| Williams, Mark Johnson, Oxford (4) | †1934 | to 1940 |
| Wood, Wiley D., Camp Hill (5) | | 1933 to 1940 |
| Wright, David H., Berry (7) | | 1932 to 1939 |

Total 91§

§Vacancy in the 6th District created by removal of the name of Dr. John L. Shamblin, delinquent in attendance, is to be filled in 1938.

COUNSELLORS-ELECT

| | |
|---|---|
| Acker, Charles T., Montevallo (6) | 1937 to 1944 |
| Belue, Julius O., Athens (8) | 1937 to 1944 |
| Brown, Elridge T., Cleveland (7) | 1937 to 1944 |
| Grote, Carl A., Huntsville (8) | 1937 to 1944 |
| Moore, C. W. C., Talladega (4) | 1937 to 1944 |
| Stabler, Lorenzo V., Greenville (2) | 1937 to 1944 |
| Stallworth, William A., Frisco City (1) | 1937 to 1944 |
| Weil, Clarence K., Montgomery (2) | 1937 to 1944 |

## THE ROLL OF THE COLLEGE OF COUNSELLORS BY CONGRESSIONAL DISTRICTS

On this roll the names of the Counsellors are given by Congressional Districts. It is intended to serve as a guide in the election of new Counsellors, with a view to the distribution of them in approximate proportion to the number of members in the several districts. It is not considered to be good policy, and it is not considered to be fair and right, to give a few large towns greatly more than their pro rata share of Counsellors. The calculations are based on the nearest whole number. On April 1, 1937, there were 1,490 members in the County Medical Societies. That would give one Counsellor to every 15 members. The membership set forth in the following is that of April 1.

### FIRST DISTRICT

*Names of Counsellors*—J. G. Bedsole and A. L. White, Clarke; E. S. Sledge, P. J. M. Acker, D. T. McCall, G. G. Oswalt, J. M. Weldon, and J. D. Perdue, Mobile; W. A. Stallworth, Monroe; and K. A. Mayer, Wilcox.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Choctaw | 7 | 0 |
| Clarke | 11 | 2 |
| Marengo | 16 | 0 |
| Mobile | 95 | 6 |
| Monroe | 12 | 1 |
| Washington | 4 | 0 |
| Wilcox | 13 | 1 |
| | 158 | 10 |

### SECOND DISTRICT

*Names of Counsellors*—F. L. Abernethy, Baldwin; L. V. Stabler and E. M. Thomas, Butler; W. R. Carter, Conecuh; L. D. Parker, Covington; S. E. Jordan, Crenshaw; M. H. Hagood and R. A. Smith, Escambia; N. G. James, Lowndes; T. B. Hubbard, F. W. Wilkerson; J. A. Martin, C. K. Weil and Douglas L. Cannon, Montgomery; and R. B. Beard, Pike.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Baldwin | 13 | 1 |
| Butler | 13 | 2 |
| Conecuh | 8 | 1 |
| Covington | 16 | 1 |
| Crenshaw | 10 | 1 |
| Escambia | 17 | 2 |
| Lowndes | 5 | 1 |
| Montgomery | 82 | 5 |
| Pike | 20 | 1 |
| | 184 | 15 |

### THIRD DISTRICT

*Names of Counsellors*—J. S. Tillman, Barbour; C. P. Hayes and W. A. Lewis, Coffee; G. R. Smith, Dale; E. T. Brunson, Geneva; S. L. Burdeshaw, Henry; V. J. Thacker and F. G. Granger, Houston; P. M. Lightfoot, Macon; and Clarence Long, Russell.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Barbour | 13 | 1 |
| Bullock | 9 | 0 |
| Coffee | 12 | 2 |
| Dale | 10 | 1 |
| Geneva | 15 | 1 |
| Henry | 14 | 1 |
| Houston | 31 | 2 |
| Lee | 18 | 0 |
| Macon | 9 | 1 |
| Russell | 7 | 1 |
| | 138 | 10 |

### FOURTH DISTRICT

*Names of Counsellors*—James Tankersley, Autauga; W. M. Salter and M. J. Williams, Calhoun; J. F. Alison and S. B. Alison, Dallas; and French Craddock and C. W. C. Moore, Talladega.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Autauga | 7 | 1 |
| Calhoun | 43 | 2 |
| Clay | 7 | 0 |
| Coosa | 5 | 0 |
| Dallas | 33 | 2 |
| Elmore | 14 | 0 |
| St. Clair | 10 | 0 |
| Talladega | 24 | 2 |
| | 143 | 7 |

FIFTH DISTRICT

*Names of Counsellors*—W. H. Riser, Chambers; T. H. Appleton, DeKalb; A. W. Ralls, Etowah; B. C. Scarbrough, Marshall; and J. A. M. Nolen, J. J. Walls, S. H. Newman and W. D. Wood, Tallapoosa.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Chambers | 14 | 1 |
| Cherokee | 3 | 0 |
| Cleburne | 4 | 0 |
| DeKalb | 16 | 1 |
| Etowah | 46 | 1 |
| Marshall | 16 | 1 |
| Randolph | 14 | 0 |
| Tallapoosa | 18 | 4 |
| | 129 | 8 |

SIXTH DISTRICT

*Names of Counsellors*—J. P. Hayes and V. J. Gragg, Chilton; T. J. Anderson, Hale; M. H. Eskew and J. V. Howell, Perry; C. T. Acker, Shelby; R. C. Hill, Sumter; and Sydney Leach and H. B. Searcy, Tuscaloosa.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Bibb | 12 | 0 |
| Chilton | 16 | 2 |
| Greene | 6 | 0 |
| Hale | 6 | 1 |
| Perry | 10 | 2 |
| Shelby | 14 | 1 |
| Sumter | 12 | 1 |
| Tuscaloosa | 44 | 2 |
| | 120 | 9 |

SEVENTH DISTRICT

*Names of Counsellors*—E. T. Brown, Blount; E. D. McAdory, Cullman; J. S. Hollis and D. H. Wright, Fayette; W. A. Gresham, Franklin; R. H. Redden, Lamar; R. L. Hill, Marion; V. L. Ashcraft and A. B. Price, Pickens; G. S. Gilder, Walker; and W. E. Howell, Winston.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Blount | 13 | 1 |
| Cullman | 14 | 1 |
| Fayette | 8 | 2 |
| Franklin | 17 | 1 |
| Lamar | 11 | 1 |
| Marion | 13 | 1 |
| Pickens | 12 | 2 |
| Walker | 36 | 1 |
| Winston | 8 | 1 |
| | 132 | 11 |

EIGHTH DISTRICT

*Names of Counsellors*—W. H. Greer, Colbert; Rayford Hodges, Jackson; A. A. Jackson, Lauderdale; W. R. Taylor, Lawrence; J. O. Belue, Limestone; E. V. Caldwell, W. C. Hatchett, and C. A. Grote, Madison; and E. M. Chenault, Morgan.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Colbert | 17 | 1 |
| Jackson | 12 | 1 |
| Lauderdale | 23 | 1 |
| Lawrence | 10 | 1 |
| Limestone | 14 | 1 |
| Madison | 30 | 3 |
| Morgan | 23 | 1 |
| | 129 | 9 |

NINTH DISTRICT

*Names of Counsellors*—G. S. Graham, S. H. Welch, J. M. Mason, Cabot Lull, R. W. Waldrop, W. F. Scott, E. W. Rucker, J. D. Dowling, M. Y. Dabney, B. S. Lester, C. W. Shropshire, Alfred A. Walker, E. M. Mason, W. S. Rountree, Lloyd Noland, J. R. Garber, D. S. Moore, Jr., Groesbeck Walsh, and S. L. Ledbetter, Jr.

| *County* | *Members* | *Counsellors* |
|---|---|---|
| Jefferson | 356 | 19 |

## THE ROLL OF CORRESPONDENTS

"Distinguished members of the medical profession residing outside of the State, and Counsellors of the Association, who after not less than ten years of faithful service may have resigned their counsellorships, shall be eligible for election as Correspondents.

"Correspondents shall have the privilege of transmitting or presenting to the Association such communications, or scientific essays, as they may deem proper."—*From the Constitution.*

| *Name and Address* | *Date of Election* |
|---|---|
| Andrew J. Coley, Oklahoma City | 1909 |
| W. S. Thayer, Baltimore | 1921 |
| Lewellys F. Barker, Baltimore | 1921 |
| Rudolph Matas, New Orleans | 1921 |
| Frank Smithies, Chicago | 1921 |
| John B. Elliott, Jr., New Orleans | 1921 |
| Howard A. Kelly, Baltimore | 1921 |
| Wm. J. Mayo, Rochester, Minn. | 1921 |
| George W. Crile, Cleveland, Ohio | 1921 |
| Henry A. Christian, Boston | 1921 |
| J. Whitridge Williams, Baltimore, Md. | 1921 |
| Chas. H. Mayo, Rochester, Minn. | 1922 |
| H. A. Royster, Raleigh, N. C. | 1926 |
| Stewart Roberts, Atlanta | 1927 |
| G. Canby Robinson, Nashville | 1928 |
| Louis B. Wilson, Rochester, Minn. | 1930 |
| R. S. Cunningham, Nashville | 1932 |
| A. Benson Cannon, New York | 1932 |
| J. Shelton Horsley, Richmond | 1933 |
| Russell L. Cecil, New York | 1934 |
| George H. Semken, New York | 1935 |
| Frank H. Lahey, Boston | 1937 |

## SCHEDULE OF THE ANNUAL SESSIONS AND PRESIDENTS SINCE THE REORGANIZATION IN 1868

| *Place and President* | *Year* |
|---|---|
| Selma—Albert Galatin Mabry | 1868 |
| Mobile—Albert Galatin Mabry | 1869 |

| *Place and President* | *Year* |
|---|---|
| Montgomery—Richard Frazer Michel | 1870 |
| Mobile—Francis Armstrong Ross | 1871 |
| Huntsville—Thomas Childress Osborne | 1872 |
| Tuscaloosa—George Ernest Kumpe | 1873 |
| Selma—George Augustus Ketchum | 1874 |
| Montgomery—Job Sobieski Weatherly | 1875 |
| Mobile—John Jefferson Dement | 1876 |
| Birmingham—Edward Davies McDaniel | 1877 |
| Eufaula—Peter Bryce | 1878 |
| Selma—Robert Dickens Webb | 1879 |
| Huntsville—Edmund Pendleton Gaines | 1880 |
| Montgomery—William Henry Anderson | 1881 |
| Mobile—John Brown Gaston | 1882 |
| Birmingham—Clifford Daniel Parke | 1883 |
| Selma—Mortimer Harvey Jordan | 1884 |
| Greenville—Benjamin Hogan Riggs | 1885 |
| Anniston—Francis Marion Peterson | 1886 |
| Tuscaloosa—Samuel Dibble Seelye | 1887 |
| Montgomery—Edward Henry Sholl | 1888 |
| Mobile—Milton Columbus Baldridge | 1889 |
| Birmingham—Charles Higgs Franklin | 1890 |
| Huntsville—William Henry Sanders | 1891 |
| Montgomery—Benjamin James Baldwin | 1892 |
| Selma—James Thomas Searcy | 1893 |
| Birmingham—Thaddeus Lindley Robertson | 1894 |
| Mobile—Richard Matthew Fletcher | 1895 |
| Montgomery—William Henry Johnston | 1896 |
| Selma—Barckley Wallace Toole | 1897 |
| Birmingham—Luther Leonidas Hill | 1898 |
| Mobile—Henry Altamont Moody | 1899 |
| Montgomery—John Clarke LeGrande | 1900 |
| Selma—Russell McWhorter Cunningham | 1901 |
| Birmingham—Edwin Lesley Marechal | 1902 |
| Talladega—Glenn Andrews | 1903 |
| Mobile—Matthew Bunyan Cameron | 1904 |
| Montgomery—Capers Capehart Jones | 1905 |
| Birmingham—Eugene DuBose Bondurant | 1906 |
| Mobile—George Tighlman McWhorter | 1907 |
| Montgomery—Samuel Wallace Welch | 1908 |
| Birmingham—Benjamin Leon Wyman | 1909 |
| Mobile—Wooten Moore Wilkerson | 1910 |
| Montgomery—Wyatt Heflin Blake | 1911 |
| Birmingham—Lewis Coleman Morris | 1912 |
| Mobile—Harry Tutwiler Inge | 1913 |
| Montgomery—Robert S. Hill | 1914 |
| Birmingham—Benjamin Britt Simms | 1915 |
| Mobile—James Norment Baker | 1916 |
| Montgomery—Henry Green | 1917 |
| Birmingham—William Dempsey Partlow | 1918 |
| Mobile—Isaac LaFayette Watkins | 1919 |
| Anniston—James Somerville McLester | 1920 |
| Montgomery—Louis William Johnston | 1921 |
| Birmingham—Dyer F. Talley | 1922 |
| Mobile—Walter S. Britt | 1923 |
| Montgomery—W. W. Harper | 1924 |
| Birmingham—J. D. Heacock | 1925 |
| Mobile—C. A. Mohr | 1926 |
| Montgomery—A. L. Harlan | 1927 |
| Birmingham—John D. S. Davis | 1928 |
| Mobile—E. V. Caldwell | 1929 |
| Montgomery—L. E. Broughton | 1930 |
| Birmingham—W. G. Harrison | 1931 |
| Mobile—Toulmin Gaines | 1932 |
| Montgomery—Samuel Kirkpatrick | 1933 |
| Birmingham—James R. Garber | 1934 |
| Mobile—William M. Cunningham | 1935 |
| Montgomery—Charles A. Thigpen | 1936 |
| Birmingham—Lloyd Noland | 1937 |

## SECRETARIES OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

| | |
|---|---|
| 1852-1854 | George A. Ketchum |
| 1854-1855 | R. Miller |
| 1869-1873 | Jerome Cochran |
| 1874-1878 | B. H. Riggs |
| 1879-1892 | T. A. Means |
| 1893-1897 | J. R. Jordan |
| 1897-1904 | G. P. Waller |
| 1904-1906 | L. C. Morris |
| 1906-1915 | J. N. Baker |
| 1915-1923 | H. G. Perry |
| 1923-1924 | Douglas L. Cannon |
| 1924-1930 | B. B. Simms |
| 1930- | Douglas L. Cannon |

## TREASURERS OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

| | |
|---|---|
| 1854-1855 | W. P. Reese |
| 1869-1898 | W. C. Jackson |
| 1898-1915 | H. G. Perry |
| 1915- | J. U. Ray |

## SCHEDULE OF JEROME COCHRAN LECTURERS

1899—J. T. Searcy, Tuscaloosa—What Is Insanity?

1900—Wm. Osler, Baltimore—Not present.

1901—Wm. Osler, Baltimore—Not present.

1902—Nathan Bozeman, New York—Declined.

1903—George H. Price, Nashville—The History of Medicine.

1904—W. S. Thayer, Baltimore—Cardiac and Vascular Complications of Typhoid Fever.

1905—Robert Abbe, New York—The Problems of Surgery.

1906—Joseph Collins, Boston—Arteriosclerosis.

1907—Nicholas Senn, Chicago—Final Triumph of Scientific Medicine.

1908—E. L. Marechal, Mobile—Absent.

1909—Lewellys F. Barker, Baltimore—Clinical Methods of Cardiac Investigation.

1910—Frank S. Meara, New York—Some Problems of Nutrition in Early Life.

1911—Rudolph Matas, New Orleans—Inflammatory Tuberculosis.

1912—Maurice H. Richardson, Boston—Elimination of Preventable Disasters from Surgery.

1913—L. L. Hill, Montgomery—Surgical Complications and Sequelae of Typhoid Fever.

1914—Frank Smithies, Chicago—Contributions of the Twentieth Century to the Better Understanding of Gastric Cancer.

1915—John B. Elliott, Jr., New Orleans—Abscess of Liver.

1916—Howard A. Kelly, Baltimore—Radium Therapy.

1917—Wm. J. Mayo, Rochester—Importance of Septic Infection in the Three Great Plagues.

1918—George E. Bushnell, Washington—The Army in Relation to the Tuberculosis Problem.

1919—George W. Crile, Cleveland, Ohio—Abdominal Surgery in Civil and Military Hospitals.

1920—Henry A. Christian, Boston—Bright's Disease With Special Reference to Its Treatment.

1921—J. Whitridge Williams, Baltimore—A Critical Review of Twenty-One Years' Experience with Caesarean Section.

1922—Chas. H. Mayo, Rochester, Minn.—The Thyroid and Its Diseases.

1923—Jas. S. McLester, Birmingham—Nutrition in Its Newer Aspects.

1924—James S. Stone, Boston—Abdominal Diagnoses in Children.

1925—H. A. Royster, Raleigh—The Surgeon's Heritage and Outlook.

1926—Stewart Roberts, Atlanta—The Heart Muscle.

1927—G. Canby Robinson, Nashville—The Mechanism of Heart Failure and Its Correction.

1928—John B. Deaver, Philadelphia—Chronic Pancreatitis.

1929—Louis B. Wilson, Rochester, Minn.—Some Suggestions for Improved Training of Medical Specialists.

1930—Walter E. Sistrunk, Dallas, Texas—The Part That Surgical Anesthesia Has Played in Medical Science.

1931—R. S. Cunningham, Nashville, Tenn.—Studies on the Pathology of Tuberculosis and Syphilis.

1932—A. Benson Cannon, New York—Practical Points on the Diagnosis and Treatment of the so-called Lymphoblastoma Group of Diseases.

1933—J. Shelton Horsley, Richmond—Cancer of the Stomach and Colon.

1934—Russell L. Cecil, New York—Present Trends in the Study of Rheumatic Fever and Rheumatoid Arthritis.

1935—George H. Semken, New York—A Consideration of Tumors of the Breast.

1936—William D. Partlow, Tuscaloosa—A Debt the World Owes Medical Science.

1937—Frank H. Lahey, Boston—Carcinoma of the Colon and Rectum.

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(Terms expire with the 1939 session of the American Medical Association)

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## Birmingham, April 20-22, 1937

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Robertson, J. B., Birmingham
Robertson, J. P., Birmingham
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Smith, R. A., Monroeville
Smith, T. L., Birmingham
Smith, W. H. Y., Montgomery
Snelling, D. B., Montgomery
Somerset, S. M., Birmingham
Sorrell, L. E., Birmingham
Sowell, J. L., Jasper
Sparks, D. H., Birmingham
Spearman, G. K., Anniston
Speir, R. C., Tuscaloosa
Stabler, A. L., Birmingham
Stabler, E. V., Greenville
Stanley, W. A., Enterprise
Stephens, S. H., Mobile
Stewart, R. C., Sylacauga
Stitt, Frank, Pell City

T

Tankersley, Felix, Montgomery
Tarwater, J. S., Tuscaloosa
Terhune, S. R., Birmingham
Terry, L. L., Sylacauga
Thomas, A. E., Montgomery
Thomas, J. L., Cottonwood
Trapp, W. R., Tuscumbia
Troje, O. R., Fairfield
Trucks, J. F., Fairfield
Turlington, L. F., Birmingham
Tyler, R. E., Birmingham
Tyler, R. E. L., Tuscaloosa

U

Underwood, S. S., Birmingham

V

Vinson, N. H., Heflin

W

Walker, Carey, Huntsville
Walker, L. M., Jasper
Wallace, A. D., Plantersville
Waller, G. D., Sr., Bessemer
Ward, J. A., Birmingham
Ward, W. R., Birmingham
Warren, W. E., Ensley
Warrck, G. W., Birmingham
Waters, H. W., Opp
Weatherford, Z. L., Red Bay
Weathington, Lee, Guntersville
Whetstone, A. K., Sylacauga
White, C. P., Double Springs
White, M. S., Hamilton
Whiteside, H. B., Ohatchee
Whiteside, M. S., Cullman
Wiley, C. C., Birmingham
Wilkinson, H. B., Montgomery
Wilkinson, J. G., Cottonwood
Wilks, A. E., Powderly
Williams, K. B., Hartford
Williams, M. B., Centerville
Williams, W. C., Bridgeport
Williams, W. L., Birmingham
Williamson, G. W., Bessemer
Wilson, F. C., Birmingham
Wilson, J. D., Birmingham
Winslow, R. C., Sylacauga
Wood, F. R., Heflin
Woodson, L. G., Birmingham
Woodson, R. C., Birmingham
Wright, R. D., Leighton
Wynne, W. H., Ensley

## VISITORS

Dr. Lamar Arrington, Meridian, Miss.
Dr. A. E. Brown, Columbus, Miss.
Dr. J. D. Burns, Russellville.
Dr. W. P. Butler, Shreveport, La.
Dr. Herbert Caldwell, Tuscaloosa
Dr. C. G. Heyd, New York City
Dr. W. C. Hill, Birmingham
Dr. T. F. Johnson, Bainbridge, Ga.
Dr. Frank H. Lahey, Boston, Mass.
Dr. Wallace Marshall, University
Dr. H. W. McKay, Charlotte, N. C.
Dr. M. T. Moorehead, Tuscaloosa
Dr. E. W. Norris, Hot Springs, Ark.
Dr. Neal Owens, New Orleans, La.
Dr. Robert H. Sanders, Rock Springs, Wyoming
Dr. H. M. Tolleson, Eastman, Ga.
Dr. J. K. Turberville, Century, Fla.
Dr. P. P. Vinson, Richmond, Va.
Dr. O. W. Welch, Sheffield
Dr. C. H. Wilson, Fairfield
Mrs. A. D. Wallace, Plantersville
Mrs. W. D. Wood, Camp Hill
Mrs. J. R. Chandler, Bessemer
Mrs. J. W. Day, Birmingham
Mrs. Irene J. Duke, Samson
Miss Ruth Gay Evans, Birmingham
Mrs. R. A. Foshee, Alexander City
Mrs. J. R. Horn, Jr., Bessemer
Miss Georgia Johnson, Tuscaloosa
Miss Frieda K. Kafer, Fairfield
Mrs. D. J. Long, Montgomery
Mrs. John McCollough, Birmingham
Mrs. Peyton McEniry, Dolomite
Mrs. J. I. Reid, Montevallo
Mrs. E. M. Thomas, Wedowee
Hugh I. Adams, Birmingham
Frank Arrington, Atlanta, Ga.
Otis R. Blakey, Birmingham
W. C. Blasingame, University
J. G. Box, Birmingham
Frank J. Brown, Montgomery
E. L. Cornman, Jr., Marietta, Pa.
Reuben T. Crawford, Montgomery
Walter D. Davis, Montgomery
Walter T. Davis, Guntersville Dam
Harold J. Duke, Samson
E. B. Duncan, Alex City
Earl Floyd, Atlanta, Ga.
W. C. Forbes, Birmingham
Robert F. Guthrie, Birmingham
C. Hayes, Fyffe
J. V. Henderson, Birmingham
George Herring, Woodstock
D. J. Hessel, Philadelphia, Pa.
Milton O. Howle, Birmingham
Charles Lamb, Kansas City, Mo.
W. L. Lenderman, Birmingham
W. P. Lewis, Tuscaloosa
J. A. Majors, Dallas, Texas
W. W. McLeod, Montgomery
F. P. Meredith, Birmingham
A. M. Miller, Danville, Ill.
C. B. Miller, Ensley
T. F. Moore, Birmingham
Earl Mowry, Birmingham
C. C. Nifong, New Orleans, La.
J. L. Nix, Birmingham
J. C. O'Dell, Birmingham
T. H. Peacock, Birmingham
Perkins J. Prewitt, Birmingham
E. B. Robinson, Jr., Fairfield
F. E. Russey, Birmingham
C. L. Sibley, Birmingham
R. C. Sims, Birmingham
J. D. Smith, Birmingham
S. C. Smith, Lynchburg, Va.
Verbon Wilhite, Cullman
E. S. Wilks, Fairfield
L. R. Wilson, St. Louis, Mo.
J. B. Workman, Birmingham
J. F. Yeates, Birmingham

SUMMARY OF ANNUAL ATTENDANCE

| Year | Life Counsellors | Active Counsellors | Delegates | Members | Visitors | Total | Place |
|---|---|---|---|---|---|---|---|
| 1910 | 10 | 44 | 83 | 157 | 51 | 344 | Mobile |
| 1911 | 14 | 53 | 66 | 139 | 19 | 291 | Montgomery |
| 1912 | 16 | 63 | 92 | 348 | 40 | 559 | Birmingham |
| 1913 | 7 | 49 | 83 | 124 | 17 | 280 | Mobile |
| 1914 | 16 | 67 | 85 | 226 | 20 | 414 | Montgomery |
| 1915 | 32 | 74 | 108 | 429 | 49 | 692 | Birmingham |
| 1916 | 19 | 66 | 92 | 106 | 41 | 306 | Mobile |
| 1917 | 18 | 64 | 96 | 199 | 32 | 409 | Montgomery |
| 1918 | 27 | 63 | 80 | 257 | 44 | 471 | Birmingham |
| 1919 | 22 | 43 | 87 | 94 | 102 | 348 | Mobile |
| 1920 | 16 | 61 | 59 | 85 | 51 | 272 | Anniston |
| 1921 | 26 | 65 | 73 | 183 | 58 | 405 | Montgomery |
| 1922 | 26 | 72 | 76 | 314 | 68 | 556 | Birmingham |
| 1923 | 14 | 48 | 66 | 106 | 50 | 284 | Mobile |
| 1924 | 29 | 70 | 84 | 230 | 79 | 492 | Montgomery |
| 1925 | 27 | 78 | 97 | 328 | 113 | 643 | Birmingham |
| 1926 | 33 | 74 | 105 | 194 | 131 | 537 | Mobile |
| 1927 | 36 | 85 | 104 | 252 | 87 | 564 | Montgomery |
| 1928 | 33 | 77 | 108 | 507 | 106 | 831 | Birmingham |
| 1929 | 19 | 60 | 102 | 176 | 109 | 466 | Mobile |
| 1930 | 32 | 83 | 106 | 286 | 102 | 609 | Montgomery |
| 1931 | 26 | 80 | 116 | 410 | 158 | 790 | Birmingham |
| 1932 | 19 | 60 | 101 | 158 | 133 | 471 | Mobile |
| 1933 | 21 | 74 | 103 | 264 | 85 | 547 | Montgomery |
| 1934 | 26 | 75 | 97 | 404 | 53 | 655 | Birmingham |
| 1935 | 15 | 59 | 91 | 180 | 83 | 428 | Mobile |
| 1936 | 23 | 79 | 95 | 265 | 68 | 530 | Montgomery |
| 1937 | 25 | 80 | 96 | 396 | 81 | 678 | Birmingham |

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

### IMMUNITY IN MALARIA*

#### III. SPECIES AND STRAINS OF THE MALARIA PARASITES

According to Craig,[1] the question of unity or plurality of species among the plasmodia of malaria has been a controversial one up until recent times. Laveran, the discoverer of these parasites, always believed that there was only one species of plasmodium and that the various morphologic forms observed in the blood were simply variations brought about by environmental factors which were not known. This theory of a single polymorphic species of parasite responsive to the influence of the host and its environment as the cause of the varied symptomatology of malaria is now obsolete. The description during the World War by several workers of what they regarded as transmutations of the three species generally accepted by protozoologists and students of malaria was based on the finding of one species in the blood after an attack caused by another of the accepted species. But double infections could not be excluded and in no instance could a true transmutation of species be scientifically demonstrated. On the other hand experience with inoculated malaria in general paresis during the past fifteen years has convincingly supported the plurality theory, as no instance of transmutation of species has been observed in the thousands of human-to-human, and mosquito-to-human inoculations.

At the present time every student of the subject believes that there are several species of malaria plasmodia, for the experimental evidence to this effect is incontrovertible and can be explained only by the existence of such species. The species that are well differentiated and are accepted by practically all authorities are the following:

1. *Plasmodium malariae* (Laveran, 1881), also known as Quartan because of its regular 72-hour periodicity.

2. *Plasmodium vivax* (Grassi and Feletti, 1890), known also as Tertian, Simple Tertian or Benign Tertian; periodicity fairly regular 48 hours.

3. *Plasmodium falciparum* (Welch 1897), known also as Subtertian, Malignant Tertian, and Estivo-Autumnal; periodicity irregular 24 to 48 hours.

Several species have been described which are of doubtful validity, namely:

1. *Plasmodium tenue*: So classified on the basis of a single film sent from India to England and examined by Stephens in 1914. Tenuous parasites were observed. It is probably a treated type of *P. falciparum*.

*Second in a series. The first appeared in the July number.

2. *Plasmodium perniciosum*: So classified by Ziemann in 1915, a virulent, fulminating type found in West Africa, the sexual and asexual forms of the parasite being small and containing little or no pigment. It is also probably a strain of *P. falciparum*.

3. *Plasmodium falciparum var. quatidianum*: Described by Craig in 1909. Small parasites. It is undoubtedly a size race of *P. falciparum*.

4. *Plasmodium camerense*: Described by Ziemann in 1915. Names suggested: *Plasmodium vivax var. minuta* and *Plasmodium ovale*. Of the names suggested *P. ovale* is perhaps the best. The red cell of the host is not altered by this parasite in size or color, but is altered in shape. Periodicity 24 to 48 hours. The parasite is small and its peculiarities are maintained in passage. It produces a specific immunity. This form is thought by many malariologists as a possible valid species, but more evidence is necessary than is at present available for such an inclusion.

In malaria, morphologically, the strains of a given species are indistinguishable one from another; immunologically, however, the existence of different strains is evident. Observations indicate that after infection with a strain of malaria plasmodia an immunity develops for that strain of parasite, which is effective against homologous strains of the same species, but not against heterologous strains of that species.

James, Nicol, and Shute[2] observed that a patient upon being inoculated with a certain strain of *Plasmodium vivax* had a primary attack of normal severity and symptomatology which had to be terminated therapeutically. Reinoculation with the same strain produced an attack which usually died out spontaneously; after recovery from the abortive second attack the patient was found to be refractory to further infection with the same strain, but inoculation with another strain of *Plasmodium vivax* produced infection and symptoms. It was noted, however, that the infection resulting from the inoculation of the heterologous strain died out spontaneously, indicating that a slight immunity to the heterologous strain existed.

Boyd and his co-workers[3, 4, 5, 6] found that by allowing primary cases of inoculated malaria to progress to spontaneous subsidation, or to progress for 2 to 3 months before treatment, reinoculations with small doses of the homologous strain produced no observable change, whereas inoculations with very large doses of the homologous strain produced what appeared to be a subclinical infection which quickly subsided. Boyd states that this homologous strain tolerance may persist for several years in the apparent absence of latent infection. Heterologous tolerance is greater with strains of *Plasmodium vivax* than with strains of *Plasmodium falciparum*. Homologous tolerance also persists longer to *Plasmodium vivax*. The normal immunity acquired as a result of an attack appears to be directed against the trophozoites of the parasite rather than the sporozoites. While the parasite is in the body, and perhaps for sometime afterward, there persists a definite homologous strain immunity, a partial immunity to the heterologous strains of the same species, and theoretically a slight immunity to all species of malaria plasmodia.

The evidence from the above, and from the fact that carriers of gametocytes of a certain species often provoke an epidemic when they move into another area where the same species of parasite, of a different strain, is endemic, definitely indicates the existence of strains of the various species of malaria parasites.

1. Craig, Charles F.: Malaria, Arch. of Path. 6: 645-723 (Oct.) 1928.

2. James, Nicol and Shute: Abst. Papers 7th. Cong. Far Eastern Med. Assoc., Calcutta, 1927.

3. Boyd, Stratman-Thomas, and Kitchen: Acquired Immunity to P. Falciparum, Am. J. Trop. Med. 16: 139-145 (March) 1936.

4. Boyd, Stratman-Thomas, and Kitchen: The Duration of Acquired Homologous Immunity to P. Vivax, Am. J. Trop. Med. 16: 311-315 (May) 1936.

5. Boyd and Kitchen: Is the Acquired Homologous Immunity to P. Vivax Equally Effective Against Sporozoites and Trophozoites? Am. J. Trop. Med. 16: 317-321 (May) 1936.

6. Boyd and Kitchen: The Efficiency of the Homologous Properties of Acquired Immunity to P. Vivax, Am. J. Trop. Med. 16: 447-457 (July) 1936.

"One of the most important factors in the decline of tuberculosis has been progressively increasing human resistance, due to the influence of selective mortality and to environmental improvements."

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### TYPHOID FEVER IN ALABAMA

The story of typhoid fever in Alabama is one of the bright spots in the history of public health in this state. From a commanding position in the list of public health enemies this disease has receded year by year, occasionally breaking out anew when precautions have been relaxed, but the trend has been definitely down. There is probably a low point that can be reached beyond which further reduction will be difficult, but we have not yet reached this residual point.

Going back twenty years we find that there were 989 deaths attributed to typhoid in 1917, or a rate of 42 per 100,000 population. During the next few years there was a marked improvement, but even as late as 1925 there were 421 deaths, or a rate of 16.8 per 100,000 from this disease. Ten years later the picture was considerably changed. In 1935 there were only 481 cases of the disease reported, with 81 deaths. The 1936 story was approximately the same. What 1937 will bring remains to be seen since the last six months of the year always provide 75% or more of the total, but for the first six months there were only 84 cases reported.

What has been responsible for this remarkable record? Many factors have undoubtedly played a part. The first big drop from 1917 on was due largely to the improvement in water supplies, milk supplies, sewage disposal and general sanitation in the larger cities. By 1925 the disease had become one of the small towns and rural areas where control is admittedly more difficult. There has been a steady improvement in the sanitary conditions in this population group, coincident with the drop in typhoid cases and this improvement in sanitation (including water, milk, food, etc.) has played a big part in the reduction. Then the use of typhoid vaccine must be considered. Recognized as a temporary measure and as one that is not absolute in its efficacy, still the millions of doses of typhoid vaccine that have been administered must have accelerated the decline.

Typhoid fever is propagated entirely by the human race and each case goes back to a previous case or carrier. A certain percentage of the cases remain as carriers, so with fewer cases each year fewer carriers are being created and the potential sources of infection are diminishing. Unfortunately, some carriers remain as such over long periods of time, hence there can be no let-up in our precautions.

In the past few years there have been innumerable instances of multiple cases of typhoid in a single family—not all from the same source, but most of them secondary to the original case. This indicates that proper precautions have not been taken to safeguard the other members of the family. The elimination of these secondary cases could bring the next big reduction and it should be fairly easy of accomplishment.

Any feeling of false security and any relapse in vigilance will bring its penalty, but we can congratulate ourselves on the record so far.

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### TREATMENT PIT-FALLS IN SYPHILIS

There are certain fundamental principles to be considered in the treatment of syphilis if accidents, recent and remote, are to be prevented. Intravenous and intramuscular therapy requires technical skill and cleanliness. Disregard of either one or both may result in serious trouble for the patient. Technical skill, in intravenous work, is a demand requirement. The art of this type of work is not acquired merely by the acquisition of a medical certificate; if it were, then all doctors would be accomplished intravenous therapists on graduation. Much more than this is needed. The technique of hitting veins and remaining in the vein must be acquired by instruction and practice. One must develop the feel of "give" as the vein is entered and the ability to realize that the vein after entrance has been penetrated sufficiently far to prevent leakage of blood or drugs.

Injecting arsenicals, except sulpharsphenamine, into the tissues causes much trouble. Pain and sloughs may occur. Incapacitation of the parts injected usually follows, with the patient spending many sleepless nights accompanied by "doctor cussing." Repeated misses of the veins will result, generally, in the patient absconding from treatment.

Once the vein has been entered, blood will flow back into the syringe, or, depending

on the bore of the needle used, suction may have to be applied to demonstrate vein penetration. During treatment the patient should be questioned as to burning pain at the site of injection and three or four times the plunger should be drawn back to show that the needle is still in the vein. If, as it occasionally may happen, a small amount of the arsenical leaks into the tissue then a new vein should be used and the full dose of the drug given. Some syphilologists believe that small amounts of arsenicals in the tissues sensitize patients and that desensitization may be accomplished if the full dose of the drug is given immediately into another vein.

Slowness of injection is another important consideration in intravenous therapy. At least one minute, but preferably 2 or 3 minutes, should be taken to inject the average doses of neoarsphenamine. Rapidity of injection or the "shot" injection may result in the development of nitritoid reaction. Most authorities agree this condition arises, in the majority of cases, from the rapid injection of arsenicals. Slowness is the preventive in most instances. A small bore needle may be the automatic control that will prevent the physician from rapidly pushing the plunger down.

The proper mixing of neoarsphenamine before injection is important if many reactions are to be prevented. Aeration increases the toxicity of neoarsphenamine. To knock off the top of the neo ampoule and then squirt the distilled water back and forth in the ampoule until the drug is dissolved or to violently shake the mixing neoarsphenamine will cause marked toxicity of the drug. Reactions will follow and invariably the drug will be blamed. The proper method of mixing is to put the 10 cc. of sterile distilled water into a small glass, then the neoarsphenamine is dusted or slowly sprinkled on the surface and solution is accomplished without agitation.

Intramuscular therapy has as its aim deep injection of drugs without injury to blood vessels or nerves. The upper outer quadrant of the hip is used to avoid these structures. It should be routine practice, though, that, before either bismuth or mercury is injected, suction should be made on the syringe to see if a vein has been entered. Disregard of this point may result in part of the injection of a nonintravenous drug into a vein and disaster will follow. Death or severe incapacitation may result from an oil embolus when an oily preparation is used.

Care in the treatment of syphilis will prevent many of the common treatment accidents.

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## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C .E., Director

### HISTORY OF ENDEMIC TYPHUS FEVER

#### ITS PREVALENCE AND DISTRIBUTION IN ALABAMA

Endemic typhus fever was first observed by Dr. Nathan Brill, of New York, in 1897. It was at that time confused with typhoid and other fevers. In many localities it is still usually called Brill's fever or Brill's disease.

Epidemiologic studies made by Drs. K. F. Maxcy and the late Dr. L. C. Havens, of the Alabama State Department of Health, indicated the existence of a rodent reservoir with transmission to man by some blood sucking parasite. Their work has been confirmed by Dyer, Rumreich and Badger, at the National Institute of Health. It has been definitely proved that rat fleas are the transmitting agents from infected rats to man. The virus of the disease has been recovered from the brains of wild rats both in the United States and Mexico. Dyer and Cedar of the U. S. Public Health Service have transmitted the disease experimentally to animals by means of infected fleas.

Since 1910 endemic typhus has been noted by various observers, from New England south along the coast to the Mexican Border, and until the last few years was confined mostly to seaport towns. It has extended inland along lines of communication until at this time it has become a rural problem, especially in the Southern States.

In 1922 the first case of typhus fever was reported in Alabama. From 1922 to 1931, inclusive, the average number of cases reported was about 65 per year and the fatality rate from the disease about 2%. During these years it was found that the disease was invading the rural areas. Evidently the infected rats from coastal towns were migrating inland.

The first noticeable increase in the disease was in 1932. Reports to the State De-

partment of Health showed 237 cases and 11 deaths. The fatality rate also increased from 2% to 4.6%.

At this time the State Health Department realized that the disease was gaining a foothold in Alabama, and through the county health units, and the cooperation of county medical societies was able to secure early and accurate reports of the cases occurring over the state.

Eight hundred twenty-three (823) cases were reported in 1933 with 35 deaths attributed to it. Although this was an alarming increase in the number of cases being reported, the fatality rate for the year did not show an increase.

Due to the increasing prevalence of the disease, health authorities of Alabama, in conjunction with the U. S. Biological Survey and the Department of Agriculture, inaugurated a state-wide rat extermination program with C. W. A. funds. More than ¾ of a million premises were poisoned and trapped. This state-wide onslaught reduced the rat population materially, and the number of cases being reported dropped. The disease was checked but not eradicated.

The number of cases of the disease reported to the Department of Health for 1934, following this state-wide control program, took a decided drop. Only 271 cases were reported with 18 deaths. Although this was a decided reduction in the number of cases, the virulence of the disease increased, as did the fatality rate. The fatality rate for this year was 6.6%.

Rates for 1935 showed a slight increase in the number of cases. Two hundred ninety-three (293) cases were reported with 18 deaths. The fatality rate was 6.1%.

The cities of Mobile and Montgomery have continued rodent control work since 1934 and no increase has been noted in the number of cases reported from these cities since 1933. No deaths from the disease have occurred in either city.

During the year, the Department of Health conducted an educational program in the southern counties of the state on rat-borne diseases and their control, through the press, by radio, lectures, and moving pictures.

The prevalence of the disease showed an increase in 1936. Three hundred sixty-nine cases were reported to the State Department of Health. Seventeen deaths resulted from it. The fatality rate was 4.3%. The case incidence was the highest since 1933.

CASE AND FATALITY RATES
1932-1936

| Year | No. Cases | No. Deaths | Fatality Rate |
|---|---|---|---|
| 1932 | 237 | 11 | 4.63 |
| 1933 | 823 | 35 | 4.24 |
| 1934 | 271 | 18 | 6.64 |
| 1935 | 293 | 18 | 6.14 |
| 1936 | 369 | 17 | 4.30 |
| Total | 1993 | 99 | |

Average No. Cases Reported per Year ..... 358.6
Percent of Cases Fatal ..... 5.2

*From* 1922 *to* 1932
Average No. Cases Reported per Year ..... 65
Percent of Cases Fatal ..... 2.0

The increase in the prevalence of the disease is probably due to an increase in the number of infected rats and not due to an increase in the number of these animals. As the disease in the rat population increases it stands to reason that the number of cases will increase in man unless the rodent population is reduced and kept to a minimum.

In view of the fact that there is no remedy for the disease and no vaccine to protect against it, the only solution would be the elimination of the infected rat and his ectoparasites.

The complete eradication of rats in Alabamar is almost an impossibility but the disease can be controlled by the extermination of rats in the infected area and by keeping it rat free until the infected fleas have died or have become non-infectious.

Rat proofing and sanitation are the only hope for a permanent reduction of the rat population and can only be accomplished by intelligent building and competent engineering standards of construction, strict sanitary regulations in regard to food products, and a continuous warfare on the rat.

A. J. P.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### MOUTH HYGIENE ACTIVITIES

Mouth hygiene lectures have been received by summer school authorities in the state with unusual enthusiasm. Leading educators of the state have long realized

the importance of mouth hygiene instruction, but in the past it has been impossible to receive this much needed information. Practically every teacher taking a summer course this year will hear the lectures on "Mouth Hygiene" given by the dentist on the staff of the State Health Department. The teachers, themselves, will be benefited by the added knowledge gained concerning their oral cavities. However, the principal aim is to stimulate the teacher's interest to a point that will cause her to pass the knowledge on to her pupils. The individual teacher is well aware of the home life of her pupils, and during the course of study she can correlate health teaching with regular courses of study.

Approximately eleven thousand teachers will be reached in this summer's activity of the Division of Oral Hygiene. These teachers in turn will encourage better mouth health for the thousands of children that come under their guidance during the next school year.

The people of the state are extremely interested in learning ways and means of maintaining better health. School authorities realize that public health education will cause a smaller number of children to repeat grades because of ill health. Every repeater of a grade costs the state more money than is generally known or seriously considered.

In lecturing on mouth hygiene, dentistry is not discussed exclusive of all other important factors pertinent to good general health. The relation of mouth health to general health is stressed. Considerable time is given to the study of diet. Food selection is emphasized as being extremely important during the entire period of growth. We stress the importance of proper selection of foods to include sufficient quantities of vitamin A to maintain health throughout life.

Visual education is one of the best methods of approach in teaching. Demonstration models are used before small groups. Models are used which show the pathological progress of dental caries. Models of normal temporary and permanent dentitions are used in contrast with models of abnormal dentitions. The conditions that often result from the loss of only one tooth are clearly shown. College classes especially interested in demonstration lectures are those in "Personal Hygiene," "Physical and Health Education" and "Visual Education." The structure of the tooth is explained, giving the function of each part. The position of the teeth in the jawbone is diagrammed. It is shown how an abscess on the end of a root of a tooth can produce bacteria which may enter directly into the blood stream.

Proper brushing technique is demonstrated when possible. The proper type toothbrush is described in detail, and advice as to the requirements of a good dentifrice is given.

Many people do not know that teeth begin to form five months before birth, so the diet of the expectant mother is discussed. The care of the mouth from birth until the end of life is encouraged.

Prevention is the keynote of the oral hygiene program. By prevention we can avoid many ill effects. The large majority of dental defects can be avoided by a good selection of food and proper care of the mouth.

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## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### PELLAGRA*

#### III. ANNUAL AND SEASONAL MORTALITY

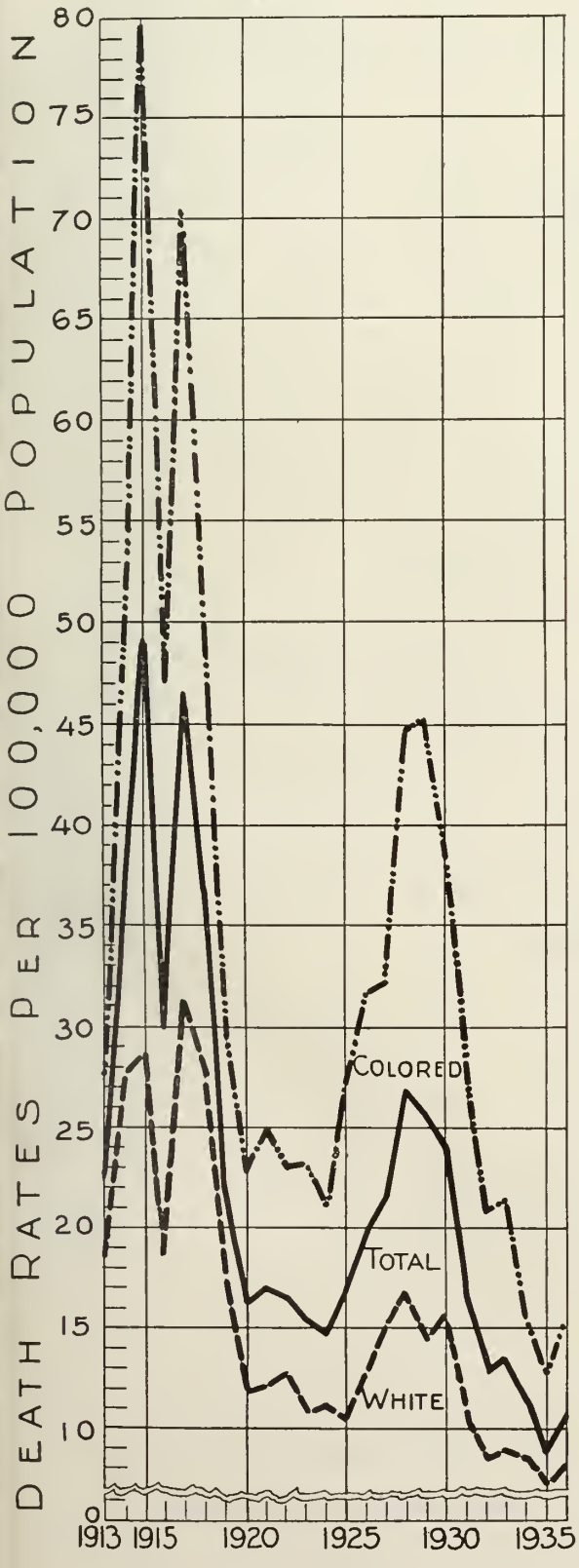
Although the long time trend in the death rate from pellagra during the past quarter of a century has been downward in Alabama, it has fluctuated considerably, especially during periods of economic instability. Table 1 and Chart 1 show that exceptionally high death rates were established in 1915 and 1928. A very slight decline in the rates was registered during the quinquennium (1920-1924). Following the peak reached in 1928, the death rate declined steadily to an all-time low point in 1935, after which it rose in 1936 to approximately the 1934 level.

The death rate during the recent depression period began to rise in 1925, three years before it reached its peak and long before the presence of the depression was generally recognized.

Chart II shows the distribution of deaths from the disease by months for the fifteen year period (1922-1936). The maximum

*This is the second of a series of articles on pellagra which was begun in the June issue.

CHART I
DEATH RATES PER 100,000 POPULATION FROM PELLAGRA, ACCORDING TO COLOR AND YEAR: ALABAMA, 1913-1936




incidence occurred during the summer months, usually reaching a peak in June or July. On two occasions, however, August was the peak month (1925 and 1935) and in 1934, March. The general tendency has been for the incidence to rise to a peak in midsummer. It became increasingly pronounced between 1922 and 1928, following which unusually high points were recorded for three consecutive years, and then became less pronounced. The 1934 seasonal distribution was atypical. In 1935 and 1936, a typical distribution was again recorded. The letter J placed along the bottom edge of Chart II refers to the month of January in the year stated immediately above.

Chart III presents graphically the fact that up until 1928, the proportion of deaths from pellagra occurring according to months, had been about the same each year. Following the above year of high incidence, a change took place. In 1928, six per cent (6.0) of the deaths occurred in January; in 1932, nine and four-tenths per cent (9.4). Correspondingly, during January and February the combined per cents were eleven and three-tenths (11.3) and sixteen and two-tenths (16.2) respectively. By adding the monthly per cents for each year in this manner the per cents were secured upon which the accompanying chart was constructed. Beginning in 1929, an increasingly greater proportion of the deaths occurred earlier in the year. This continued until 1935, following which the per cents tended to decrease to the distribution of 1928 and before.

TABLE I

DEATHS AND DEATH RATES PER 100,000 POPULATION: ALABAMA, 1913-1936

| Year | Number | | | Rates | | |
|---|---|---|---|---|---|---|
| | Total | White | Colored | Total | White | Colored |
| 1913 | 500 | 242 | 258 | 22.6 | 18.6 | 28.4 |
| 1914 | 819 | 366 | 453 | 36.7 | 27.6 | 50.0 |
| 1915 | 1109 | 389 | 720 | 49.3 | 28.9 | 79.6 |
| 1916 | 677 | 253 | 424 | 29.8 | 18.5 | 46.9 |
| 1917 | 1073 | 435 | 638 | 46.8 | 31.3 | 70.6 |
| 1918 | 848 | 394 | 454 | 36.6 | 27.9 | 50.3 |
| 1919 | 517 | 253 | 264 | 22.1 | 17.6 | 29.3 |
| 1920 | 380 | 173 | 207 | 16.1 | 11.8 | 22.9 |
| 1921 | 405 | 180 | 225 | 16.9 | 12.1 | 24.8 |
| 1922 | 402 | 193 | 209 | 16.6 | 12.8 | 22.9 |
| 1923 | 377 | 164 | 213 | 15.4 | 10.7 | 23.2 |
| 1924 | 364 | 171 | 193 | 14.7 | 11.0 | 21.0 |
| 1925 | 418 | 166 | 252 | 16.7 | 10.5 | 27.2 |
| 1926 | 502 | 208 | 294 | 19.8 | 12.9 | 31.6 |
| 1927 | 552 | 249 | 303 | 21.5 | 15.2 | 32.4 |
| 1928 | 698 | 278 | 420 | 26.9 | 16.8 | 44.8 |
| 1929 | 670 | 242 | 428 | 25.5 | 14.4 | 45.4 |
| 1930 | 635 | 268 | 367 | 23.9 | 15.7 | 38.7 |
| 1931 | 448 | 185 | 263 | 16.7 | 10.7 | 27.7 |
| 1932 | 350 | 149 | 201 | 12.9 | 8.5 | 20.7 |
| 1933 | 368 | 158 | 210 | 13.4 | 8.9 | 21.4 |
| 1934 | 309 | 155 | 154 | 11.1 | 8.6 | 15.6 |
| 1935 | 254 | 131 | 123 | 9.0 | 7.2 | 12.3 |
| 1936 | 306 | 150 | 156 | 10.8 | 8.2 | 15.4 |

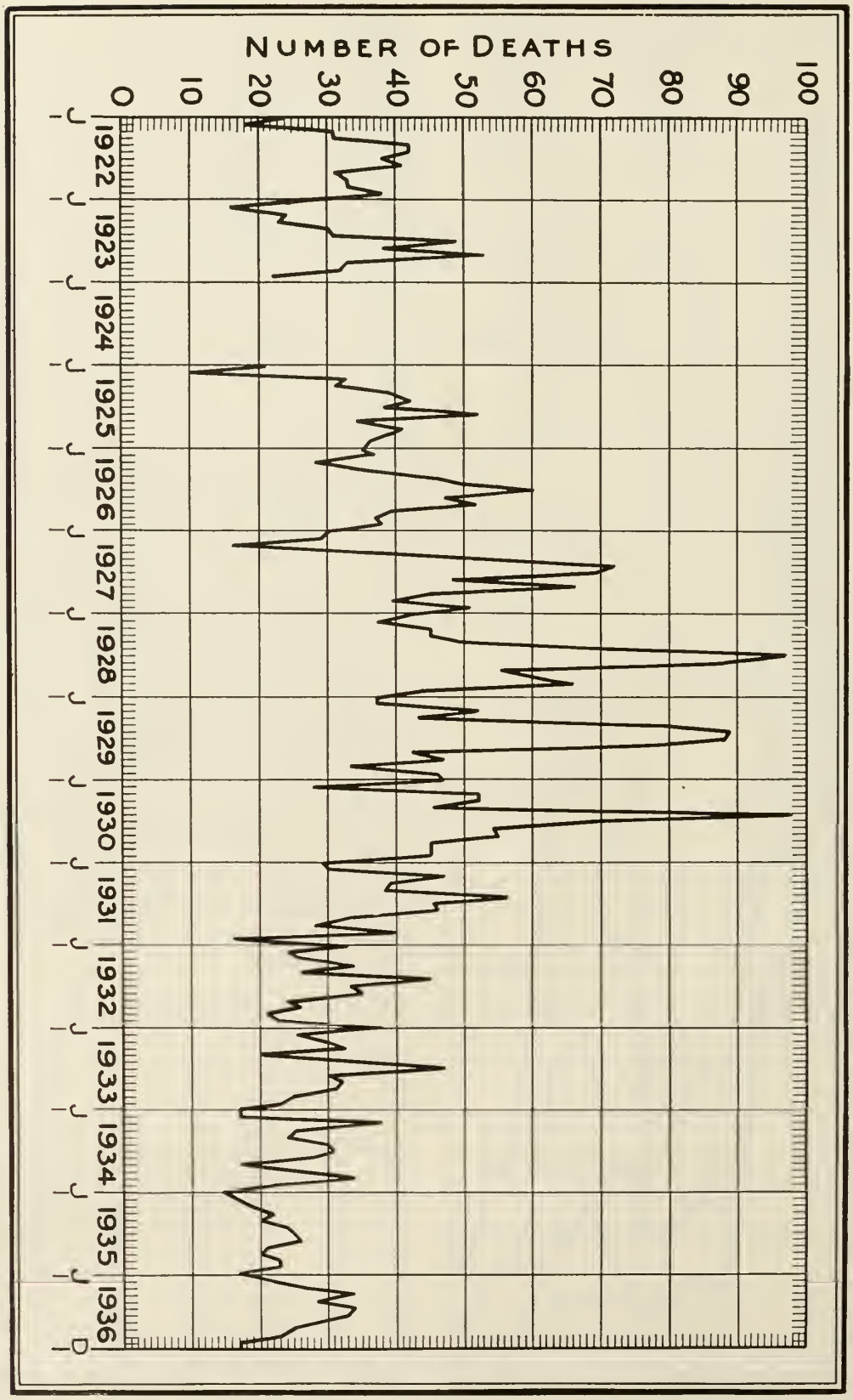



CHART II
NUMBER OF DEATHS FROM PELLAGRA, ACCORDING TO MONTH AND YEAR: ALABAMA, 1922-1923 AND 1925-1936

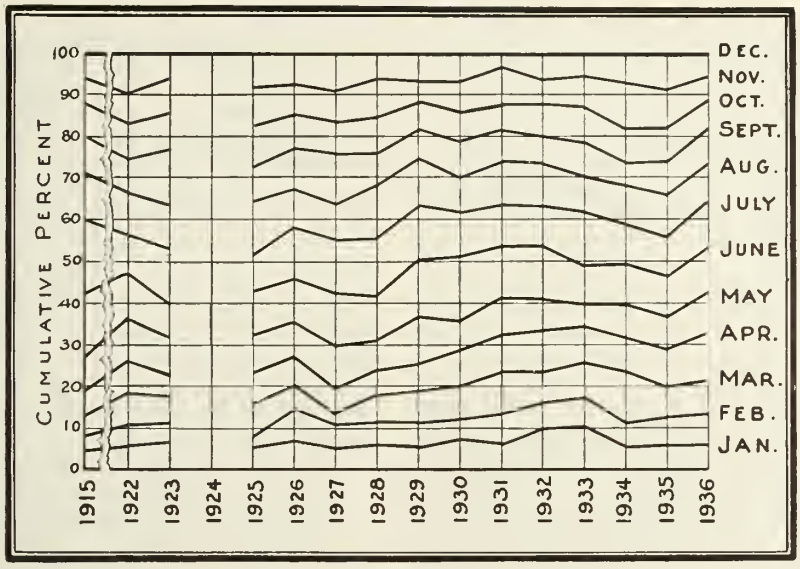



CHART III

CUMULATIVE PER CENT OF DEATHS FROM PELLAGRA, ACCORDING TO MONTH AND YEAR: ALABAMA, 1915, 1922-1923 AND 1925-1936

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 | | Estimated Expectancy |
|---|---|---|---|
| | May | June | June |
| Typhoid | 14 | 33 | 65 |
| Typhus | 25 | 43 | 29 |
| Malaria | 262 | 515 | 383 |
| Smallpox | 5 | 1 | 4 |
| Measles | 107 | 120 | 241 |
| Scarlet fever | 27 | 18 | 31 |
| Whooping cough | 197 | 248 | 176 |
| Diphtheria | 40 | 35 | 38 |
| Influenza | 372 | 49 | 52 |
| Mumps | 184 | 72 | 59 |
| Poliomyelitis | 3 | 10 | 5 |
| Encephalitis | 5 | 2 | 2 |
| Chickenpox | 156 | 32 | 44 |
| Tetanus | 3 | 2 | 4 |
| Tuberculosis | 334 | 258 | 356 |
| Pellagra | 31 | 54 | 129 |
| Meningitis | 53 | 29 | 5 |
| Pneumonia | 346 | 122 | 117 |
| Syphilis | 1367 | 1462 | 208 |
| Chancroid | 14 | 9 | 6 |
| Gonorrhea | 447 | 339 | 201 |
| Ophthalmia neonatorum | 3 | 2 | 1 |
| Trachoma | 0 | 1 | 0 |
| Tularemia | 3 | 0 | 1 |
| Undulant fever | 8 | 9 | 2 |
| Dengue | 0 | 9 | 0 |
| Amebic dysentery | 1 | 1 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 118 | 79 | |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

# *Book Abstracts and Reviews*

**Municipal and Rural Sanitation.** By Victor M. Ehlers, Chief Sanitary Engineer, State Health Department of Texas; and Ernest W. Steel, Professor of Municipal and Sanitary Engineering, Agricultural and Mechanical Colleg of Texas. Second Edition. McGraw-Hill Book Company, Inc., New York and London. 1937. 477 pages.

The authors have placed in a convenient form knowledge which every sanitarian should have. Principles of sanitation related to a wide range of activities are involved. The discussions include communicable diseases, excreta disposal, characteristics, treatment and protection of water supplies, refuse collection and disposal, mosquito, fly and rodent control, sanitation of milk and other foods, plumbing, ventilation, lighting, housing, school sanitation, industrial hygiene, tourist camps, swimming pool sanitation, disinfection, vital statistics, public health organization and a chapter on miscellaneous subjects.

In bringing this second edition up to date, the chapter on ventilation, swimming pools and excreta disposal have been revised and important additions have been made to the material on industrial hygiene, milk sanitation and plumbing. The chapter on mosquito control has been consolidated and new material added. Other additions include a brief discussion of noise abatement.

This book should prove its usefulness in the hands of any one who is engaged, or particularly interested, in municipal and rural sanitation. It should be in the library of every county health unit.

T. H. M.

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**Life and Death, The Autobiography of a Surgeon.** By Andrea Majocchi. Translated by Wallace Brockway. Knight Publications, New York, publisher. 300 pages. Cloth, $2.75.

Dr. Majocchi's father, a physician apparently at the beginning of a brilliant professional career, died at the age of 32 from an infection received while performing an autopsy. His last words before becoming delirious, spoken to his devoted wife, were:

"Maria, I am dying. I commit our children to your care. Remember I would rather have them peasants than doctors."

Dutiful son though he was, Andrea did not heed his father's desire that he choose some other pro-

fession than medicine. The many residents of Italy and other countries who have been restored to health by Dr. Majocchi's scalpel, which D'Annunzio has described as "miracle-working," cannot fail to feel grateful that he made that decision. After a long, discouraging struggle against poverty and any number of other obstacles, he became head surgeon at the famous Osepedale Maggiore, in Milan, and that high post he now holds. Today he is considered Italy's foremost surgeon. The story of that long struggle, of his life as a medical student, as a practitioner of the art of healing the sick and as a prolonger of life through the miracles of surgery is told in simple, modest, straightforward fashion in this, his autobiography.

After completing his six-year medical course at Pavia, Dr. Majocchi joined the staff of the Milan Obstetrical Station, and that part of his book describing his work there is full of interest. He tells about a cesarean operation performed on a dead woman, about a snake charmer who had had a miscarriage as a result of being crushed by an angry boa constrictor, about the theft of his obstetric instruments by a monkey just after saving this woman's life, about performing a serious obstetric operation upon an inmate of one of the city's lowest houses of prostitution, under anxious admonitions from the owner to make no noise, and to permit his patient to make none, so as not to give the bestial revelers in the adjoining rooms any inkling that anything was wrong, about the old man who lost his mind upon discovering that his daughter, whom he had considered altogether chaste, had become pregnant and about numerous other experiences while a member of this institution which he describes as "a relief station for pregnant women."

Of particular interest to American readers, especially confreres of the author in the healing art, are his references to his visit to this country early in 1909. Of the New York of that time, he wrote:

"New York, the world city, a veritable maelstrom of peoples, seems at first sight like a gigantic monstrosity; a very bad impression to make on an Italian full of traditional ideas about beauty and art. Those insolent skyscrapers and the noisy clang of the 'El' are amazing, but scarcely admirable. It is worse still if the unforeseen spectacle greets your eyes some March morning, and you already are cursing the light but chilling downpour. I left the boat with an engineer from Turin, and as we walked to the hotel I felt that our thoughts were the same every time our glances met. We saw in our mind's eye our small but delightful Italian cities, with their elegant buildings and spacious squares, as we had seen them, drenched with Italy's incomparable sunlight."

From this the reader gets the impression that Dr. Majocchi did not obtain a very favorable impression of the metropolis which even then O. Henry was glorifying as Bagdad on the Subway. That assumption is correct, for this visitor, hungry for the landscapes and vineyards of his native Italy, does not go to any great pains to conceal the fact that he found much in New York, and elsewhere in the United States, not at all to his liking.

He has, it is true, an ungrudging admiration for American efficiency, especially in the operating rooms of the great hospitals. The Mount Sinai hospital he describes as "a model of luxury, cleanliness and order." This institution's operating rooms he calls "veritable amphitheaters of marble and crystal, stocked with every possible scientific necessity." He has special praise for the white-uniformed nurses, who, he says, "strike the most characteristic note in this splendid institution."

Nevertheless, Dr. Majocchi finds as much to criticise in American medicine as in the jagged peaks of New York's skyscrapers. He found it suffering from the typically American tendency toward extreme specialization, he reveals, and compares the limited field of doctors and surgeons with what he saw in the Chicago stockyards—one specialist of his kind detaching the horns from a passing carcass dangling from an overhead chain after the animal had been killed by the specialist in the art of slaughter, another specialist deftly removing the hoofs, still another the ears, etc., etc.

"Needless to say, each of these experts did his share perfectly, for he had never done anything else," the author tells us, "and he would not have been able to do his job if he had been another kind of expert. So workmen exist today who have never done anything, or thought of doing anything, except cutting off horns, or hoofs, or ears, as the case may be. Superb organization and perfect division of labor, no doubt, but the man who narrows his daily perspective down to this single task—this rigidly prescribed bit of manual labor—ends by becoming little more than a cretin."

He especially laments what he terms the extension of this sort of technique to the art of healing and points an accusing finger at the Mayo Clinic: "The Mayo Clinic was, at this time, the Mecca of surgery, and all the leading American physicians and surgeons had made the pilgrimage one time or another. The most miraculous operations were performed there, and there they compiled the most impressive statistics. The two Mayos directed it. They had literally created it out of nothing, modeling it after an industrial establishment, after a modern factory, in fact. Thus the patient who wishes to be treated at the Mayo Clinic must present his credentials at the registration bureau, which includes a number of waiting rooms, a certain number of offices, and a no less greater number of consultation rooms. In each office is a specialist who examines only the patients who come within his special province.

"The patient returns to the main office where he receives a divisional card. After a brief interrogation a nurse finds out the disease in question, or rather, what is the diseased organ, and sends the patient to the office assigned to such cases. The specialist examines him, questions him, and, whenever necessary, confers with other specialists (the x-ray expert, the chemist, the histologist), and finally, if the patient needs an operation, hands him over to the surgeon or, more precisely, the operator. The latter sees the patient on the operating table, and consults the diagnosis. It is admirably presented and painstaking in detail. In other words, the operator has his task planned for him in advance. He has only to take up the surgical knife, and cut."

Even the specialization among specialists did not escape Dr. Majocchi's watchful eye:

"Needless to say, the division of labor was carried straight through to the operating room, and each operator had his specialty. I recall that William Mayo preferred the abdomen, Charles Mayo the head and neck, etc."

The author says flatfootedly that "the Latin temperament revolts against this restriction of personal activity, and reserves its admiration for the great universal geniuses, men like Leonardo, Michelangelo, Pico della Mirandello, and, in medicine, for the great synthetic minds, the inspired clinicians, noteworthy for their general culture and naturally disposed to a many-sided activity."

No doubt many Americans will be disposed to take issue with Dr. Majocchi and insist that the Latin mind is too old-fashioned in this matter. These objectors to the Majocchi point of view will argue that, in surgery or in the manufacture of watches, more effective work can be done by one who has completely mastered his field, however small, than by a Jack of all trades who can make a fair job of a number of tasks but lacks that wealth of knowledge which is the reward of the specialist. Nevertheless, these objectors to the Majocchi point of view cannot deny that he has made out a good case.

There are other chapters of absorbing interest. One tells about his experiences as a surgeon fighting a desperate battle against wounds caused by Austrian bullets and shrapnel during the World War. Another refers ever so briefly to Mussolini and the march on Rome. Another tells about his work and describes his emotions while performing operations at the Osepedale Maggiore. He disclasses the surgeon's attitude toward religion and defends himself and his fellow-surgeons against the charge that the wielder of the scalpel cannot escape a degree of heartlessness and indifference toward things of the spirit.

"Life & Death" was not written primarly for the medical profession but is aimed at a much larger public. It is now in its fourth large printing, and that alone is sufficient to show that it has caught popular favor. It nevertheless has a particularly strong appeal for those who have had, even in small measure, the kind of experiences which Dr. Majocchi has had and which he describes so delightfully. J. M. G.

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**Cancer and Diet, with Facts and Observations on Related Subjects.** By Frederick L. Hoffman, LL.D., of the Biochemical Research Foundation of the Franklin Institute, Philadelphia. 1937. Baltimore. The Williams & Wilkins Company. 767 pages. Illustrated. $5.00.

Dr. Hoffman, who spent some time in several European countries, the French possessions in North Africa and various parts of the United States in his search for material for this unusually thick volume, obviously believes thoroughly that diet plays an important role in cancer. Most of his book is devoted to his attempt to win others to his way of thinking.

As it happens, Dr. Hoffman, who is not a physician, of course, is trying with all the earnestness of which he is capable to prove a theory contrary to the best medical opinion on the general subject of diet and cancer. There is on every page, and indeed in almost every paragraph, evidence of much research to prove his point. The fact that he fails to do so is certainly not due to any lack of industry on his part. But the fact that he has failed is beyond dispute.

The main body of the book (that is, exclusive of the appendices) is divided into five parts. Part One deals with the theories relating to diet and its effect upon cancer. It refers to Hippocrates and Galen, Lanfranchi and Tagault, Pare and Paracelsus, and seeks to assemble them and a host of others as supporters of his theory. In Part Two the author deals with modern diet and voices his belief that "essential errors underlie the modern diet of civilized races, depending chiefly upon modified foods from international sources," and that, consequently, "far-reaching changes in bodily functioning and metabolism are introduced," which, he adds, "are among the causes of conditions predisposing to the development of malignant new growths." Parts Three and Four concern themselves with cancer metabolism and dietary facts relating to cancer patients, respectively. Part Five summarizes what has gone before and contains the author's conclusions therefrom.

Dr. Hoffman makes it plain that he does not share the faith which the medical profession has in the efficacy of surgery in the treatment of cancer. In fact he goes to some pains to show his readers how little he thinks of it by studiously avoiding mention of surgery except very briefly and then only to point out what he calls its failures.

He is equally at odds with reputable medical opinion in the matter of x-rays in the treatment of cancer, dismissing them altogether without even the briefest of mention in his index.

Such a volume of course has a right to a place in current book publishing. In a country that boasts a free press, which includes a free book press, anybody has a right to write about any subject under the sun and to say anything he wishes about it, provided the canons of decency are not offended. However, Dr. Hoffman cannot blame the medical profession if it concludes that he has attempted to prove the unprovable and, innocently perhaps, by giving aid and comfort to cancer charlatans, has likely done the cause of health a distinct disservice. J. M. G.

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**A Laboratory Manual of Physiological Chemistry.** By D. Wright Wilson. Benjamin Rush Professor of Physiological Chemistry, University of Pennsylvania. The Williams and Wilkins Company, Baltimore. 288 pages. 1937. $2.50.

This manual was written for teaching purposes in the laboratory and makes no pretensions of being a reference volume. Alternate pages are blank for note taking. The book is divided into two parts. In the first the inorganic constituents of bone and urine, carbohydrates, proteins and fats are considered besides discussions and experiments on standard acids and alkalis, colloids and electrolytic dissociation. In the second part experiments on body tissues and liquids are described. These include the various secretions, bile, blood, bone, muscle and urine. Metabolism is studied briefly by quantitative urine tests and dietary deficiencies by feeding rats, guinea pigs and pigeons on rations with low vitamin content.

This is the third edition of this book. J. G. McA.

**Manual of Public Health Laboratory Practice.** By J. R. Currie. Henry Mechan, Professor of Public Health, University of Glasgow. William Wood & Co., Baltimore. 378 pages. 1936. $6.75.

This book was written primarily for English students, who desire to qualify in the field of public health. Inasmuch as such individuals in England must be medical graduates and licentiates, the author "assumes in the reader that knowledge of the scientific fundamentals which every qualified practitioner should have acquired during his medical training."

The subject matter is divided into six sections, chemistry, bacteriology, protozoology, helmintholo-gy, entomology and meteorology. More details as to methods are given in the section on chemistry than in that on bacteriology. The sections on protozoology, helminthology and entomology are well handled, and the illustrations are excellent. The one on meteorology is unique.

Some of the methods described have been superseded in this country, and a few of the statements would not be accepted as good practice here. For instance, under rabies the following appears: "The suspected dog should be killed and the head taken." This rule, if followed, would lead to a large number of erroneous negative results. Under malaria, the sporozoite is called the sexual rather than the asexual form of the parasite. The use of the genus and species names *Laverania malariae* instead of the more common *Plasmodium falciparum* to designate malignant tertian or estivo-autumnal malaria will be confusing to most American readers.

The printing and general make-up of this book are excellent, and there is a good index. It should prove of value to anyone interested in public health. J. G. McA.

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**Nutritive Aspects of Canned Foods.** Compiled by the Nutrition Laboratory, Research Department of the American Can Company, New York City. 110 pages. Illustrated.

Although Spallanzani is credited with having pointed out, as early as 1775, that certain products could be preserved if heated in corked glass bottles, this volume awards to the Frenchman Nicholas Appert the palm for bringing about "the first conscious use of heat processing of foods in sealed containers specifically for food preservation." The prolonged Napoleonic wars and the continuing effectiveness of the British blockage of French ports caused a serious food shortage in France, it tells us, and the situation became so acute that Napoleon I offered a prize of 12,000 francs for the most practical method of preserving "animal and vegetable substances." This prize was won by Appert, who developed a method of preserving a wide variety of foods by heat-processing them in corked glass containers. That process, a product of the first decade of the nineteenth century, is regarded as the beginning of the present large canning industry.

Many other bits of information having to do with the preservation of food are to be found in this book, the second of a series that began last year with the publication of "Facts About Commercially Canned Foods." The book proper is divided into two sections. Section One has to do with dietary requirements, infant nutrition, the safety of canned foods under modern packing conditions, etc. Section Two describes in considerable detail the process of can manufacturing. In the appendix there are 33 pages of reference tables and charts relating to energy expenditures, dietary requirements, etc. This is followed by a bibliography.

It is a thoroughly helpful volume for those interested in the subject with which it deals.

J. M. G.

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**Man In A Chemical World.** By A. Cressy Morrison. Charles Scribner's Sons, New York. 1937. 292 pages. Cloth. Price $3.00.

This book is the outgrowth of the recent celebration of the three hundredth anniversary of the birth of the chemical industry in the United States.

The purpose of the book is to show the average man how the products of chemical industry touch every phase of his life, at work and at leisure, and serves him in a multitude of ways to lighten his burdens, preserve his health, enrich his life and brighten his outlook for himself and his progeny.

In his clear and charming style the author shows that chemical industry is indeed a magic wand, even now, has not only outstripped Mother Nature in so many ways, but scarcely begun to reveal to mankind the extent of its magic. In the words of Arthur W. Hixson, who wrote the foreword, "this book is the clear, sparkling distillate of the wide experience gained during a lifetime of devoted service to an industry that has helped mightily to strengthen the pulse of the nation from its very beginning."

This appraisal of one of our basic industries should be read by everyone interested in his material well being, and who isn't? W. F. Q.

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**Eugenical Sterilization: A Reorientation of the Problem.** By The Committee of the American Neurological Association for the Investigation of Eugenical Sterilization. The Macmillan Company, Publishers, 60 Fifth Avenue, New York. 211 pages. 1936. Cloth. $3.00.

This Committee, selected in 1934 by the American Neurological Association, is composed of the following members of the Association: Abraham Myerson, M. D., James B. Ayer, M. D., Tracy J. Putnam, M. D., Clyde E. Keeler, Sc. D., and Leo Alexander, M. D. Its labours and the publication of the report were facilitated by a financial grant from the Carnegie Foundation.

The Committee's preliminary report was submitted to the Association in 1935, approved and its publication in amplified form authorised.

The Committee in its introductory foreword says: "We have attempted to evaluate in a critical manner both the facts and the theories which constitute the subject matter of the inheritance of the mental diseases, feeblemindness, epilepsy, and crime . . . In making recommendations we have endeavoured to keep in mind the political and social complexion of America, since it is in that milieu that whatever laws are enacted must operate . . . We hope that the subject matter of the report and the recommendations will be of value, both in evaluating past work and as the basis for legislative, and especially, for research activity."

This Committee has performed the task set for itself in a painstaking and critical fashion. In one of the early chapters, the laws now operative

in those states of the Union which have sought to deal with sterilisation are briefly epitomised, as well as the laws in certain of the foreign countries. This resume' affords, to the interested student, a ready reference and should prove helpful.

The title of Chapter III is "Main Arguments *for* Sterilization"; more properly should this be entitled "Main Arguments *against* Sterilization." Here one finds listed several statements which the report says frequently appear in the "propaganda" for sterilisation: (a) marked increase of mental disorders; (b) abnormal fertility of mental defectives with a declining birth rate in the general population, particularly in the higher levels; and (c) a minimising of environs and a magnification of the germplasm. There then follow quite lengthy arguments, buttressed by numerous quotations from current writers, the clear purport of which is to prevent unwarranted and scientifically unproven statements from creeping into a question admittedly highly controversial and yet withal of tremendous import to society. One senses in this part of the report a feeling on the Committee's part that there is need for scientific medicine to keep its feet squarely on *terra firma* during this groping, formative stage, when society and government are now experiencing the "birth-pangs" of a novel, and little explored problem. The innate conservatism of medicine prompts that for "propaganda" there be substituted scientific truth and education; which means that, in this particular field probably more than any other, government and society should heavily lean upon the medical profession for leadership and guidance. Upon medicine's response to this challenge much of the success or failure of this social venture will hinge.

Chapter VI deals interestingly and quite at length with "Studies on the Inheritance of Mental Diseases." Here are discussed schizophrenia, manic-depressive psychosis, feeblemindness, epilepsy and crime. Before dealing with the heritable characteristics of these diseases individually, occasion is taken to point out the unwisdom of attempting to apply the theory of polymorphism to the whole gamut of psychoses. The report says: "While a certain possible trend toward polymorphism may be found and while it is possible that the constitution which develops, let us say, epilepsy, has some relationship to the constitution which develops dementia precox, the relationship is not close enough to warrant the postulate of any wide-spreading unitary trait back of all psychoses, feeblemindness, epilepsy and the like . . . "It has been shown by all the recent workers that there are only two psychoses which have a hereditary significance of importance—manic depressive and dementia precox." Regarding dementia precox the report says: "It is possible that there is some hereditary factor operating in its production, although it cannot be stated that this has been satisfactorily demonstrated in a clear-cut, incontrovertible way. . . ." Regarding manic-depressive psychosis: "It is safe to say that manic-depressive psychosis is inheritable; that whether in mild or severe form it manifests itself in a considerable number of the descendants or collaterals of those who have this disease." Regarding feeblemindness: "It may be safely stated that from whatever angle approached, if one excludes the cases where organic disease, cretinism, Mongolism and other differentiated types of feeblemindness are present, the results of the various studies show a larger proportion of inheritance of feeblemindness than could be expected by any law of chance."

A disappointingly brief chapter lightly touches upon criminality and the possible relationship which sterilisation might have upon its control. The report says: "There is almost no evidence to show that criminality as such could be reached by sterilisation, although there may be and there probably is a type of individual predisposed to crime by his constitution."

Chapter IX interestingly rehashes the more recent observations and studies which have been conducted with twins and the relative influence of heredity and environment on the physical and mental characteristics of man.

Chapter XI concludes the Committee's report, bearing certain recommendations and a discussion on certain phases of these recommendations. These recommendations are as follows:

"1. Any law concerning sterilization passed in the United States under the present state of knowledge should be voluntary and regulatory rather than compulsory. The present survey clearly shows that compulsory features of the laws which have been passed in this country have, with rare exceptions, remained unused. Either the custom of obtaining the consent of the patient has become established, or the law has remained practically unenforced.

"2. Any law concerning sterilization should be applicable not only to patients in state institutions but also to those in private institutions and those at large in the community. We see no reason for group or class discrimination.

"3. The essential machinery for administering any law in regard to sterilization should be one or several boards composed chiefly of persons who have had especial training and experience in the problems involved, which should study each case on its individual merits, and should strongly urge, suggest, or recommend against, sterilization according to its findings. Cases could be brought before such a board by superintendents of institutions, private physicians, parents or guardians, or by the patients themselves. This arrangement would promote elasticity in the application of the law, and permit the utilization of future advances in knowledge.

"4. Adequate legal protection for the members of such a board, and for the surgeons carrying out the recommendations, should be secured by statute.

"Your Committee feels, in short, that it can only recommend sterilization in selected cases of certain diseases and with the consent of the patient or those responsible for him. We recommend that such selective sterilization be considered in cases of the following diseases (arranged roughly in the order in which sterilization would appear to be indicated):

(1) Huntington's chorea, hereditary optic atrophy, familial cases of Friedreich's ataxia, and certain other disabling degenerative diseases recognized to be hereditary.

(2) Feeblemindness of familial type.
(3) Dementia praecox (schizophrenia).
(4) Manic-depressive psychosis.
(5) Epilepsy."

From the scientific point of view, the Committee has done its task well. One sees coursing through its entire fabric a thread of ultraconservatism, quite characteristic of the medical mind. True it is that physicians are loath to assume the initiative in social and economic change; seemingly, they prefer to adapt themselves to conditions after a change has been wrought. Is such an attitude always wise? No problem confronts society today of greater import than the one dealt with in this report. Militancy on the part of the expert spokesman in this particular field of medicine may not have been called for. None the less, any problem confronting society, having the medical and biologic implications of this one, demands leadership and direction from the best minds trained in these sciences. If a satisfacory solution is ultimately to be had the initiative and leadership should come from these sources, and medicine should be found in the forefront, counteracting the possible baneful effects from unsound pressure groups.

J. N. B.

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**Medical Urology.** By Irwin S. Koll, B. S., M. D., F. A. C. S., Attending Urologist, Michael Reese Hospital. Illustrated with 92 text illustrations and six color plates. 432 pages. Published by C. V. Mosby Co., St. Louis, Mo. 1937. Cloth, $5.00.

Medical Urology is written primarily for the general practitioner and the medical student. As the title states it deals with the medical phase of urology with brief mention, only, of the needs for surgery, but surgical technic is conspicuous by its absence.

The book is divided into five parts. Part I deals with diseases of the urethra and genitalia. Part II deals with venereal ulcerative lesions of the external genitalia and adnexia; Part III with diseases of the kidneys and ureters; Part IV with diseases of the urinary bladder, and Part V with verumontanitis, sexual impotence and sterility.

The first two sections comprehensively but briefly describe etiology, pathology, symptomatology and treatment of the venereal diseases except syphilis. Syphilis is made reference to but only described in Part IV when involving the bladder. Before the diseases and involvement of genito-urinary organs are described a brief description is given of the anatomy and physiology. This is quite necessary and ideal arrangement for the student and general physician.

The fact that 75-85% of the males in the United States have had or now have gonorrhea shows the need for books of this kind. Twenty per cent of males and a much larger percentage of females harbor 15-30 different strains of organisms in the urethra.

Medical Urology is recommended to all physicians interested in treating conditions and diseases in the genito-urinary tract. Its simplified descriptions without undue extravaganza of adjectives, and its direct treatment of each subject without wading through excessive extraneous material makes this an ideal reference book for all physicians.

W. H. Y. S.

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**The Collected Papers Of The Mayo Clinic And The Mayo Foundation.** Edited by Richard M. Hewitt, B. A., M. A., M. D.; Lloyd G. Potter and A. B. Nevling, M. D. Volume XXVIII (Papers of 1926 Published 1937). Octavo of 1,331 pages with 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $12.00 net.

The new Mayo Clinic volume contains over 1,300 pages filled with a varied assortment of articles, dealing with many phases of medicine and surgery. The usual excellence of this volume is maintained. One can not but be impressed with the fact that year after year, for twenty-eight years, research workers at the Mayo Foundation have succeeded in producing such a tremendous amount of valuable scientific literature.

The present volume contains two excellent articles by Alvarez dealing with the diarrheas and food allergy, respectively. Wilder has reported the experiences of the Mayo Clinic with protamine insulin. There are excellent articles on mandelic acid as a urinary antiseptic, on cardiovascular lues, on myasthenia gravis, on the criteria of cure of syphilis, as well as excellent articles appealing particularly to surgeons, internists, anesthetists, dermatologists or radiologists. The articles include subjects of interest to almost all specialists. To keep up with the year's progress in medical sciences, one should be familiar with the Papers of the Mayo Clinic and Mayo Foundation.

C. K. W.

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**Health Education Of The Public.** A Practical Manual of Technic. By W. W. Bauer, B. S., M. D., Director, Bureau of Health and Public Instruction, American Medical Association; Associate Editor of Hygeia, The Health Magazine; and Thomas G. Hull, Ph. D., Director, Scientific Exhibit, American Medical Association; Associate Professor of Bacteriology, University of Illinois, College of Medicine. 227 pages with 39 illustrations. Philadelphia and London: W. B. Saunders Company, publishers. 1937. Cloth, $2.50 net.

This little book of some two hundred pages contains information which should be of value to those entrusted with the responsibility of educating the public in matters pertaining to health. It should appeal particularly to the staff of the State Board of Health, to county health officers, to the boards of health of the various counties and to those individuals who are called upon from time to time to talk before various organizations and lay groups. The book deals chiefly with the material used by the American Medical Association in its health instruction but it contains lists of sources where material may be obtained for the preparation of talks on almost any subject. The media through which health publicity may be spread are discussed—the radio, the exhibit, lectures, meetings, newspapers, motion pictures, stereopticon slides and pamphlets —and the manner in which one may get the best results out of these various media are described in detail.

C. K. W.

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**A Brief Outline Of Modern Treatment Of Fractures.** By H. Waldo Spiers, A. B., M. D., Professor of Orthopedic and Fracture Surgery, College of Medical Evangelists, Los Angeles, California. William Wood & Company, publishers. Baltimore, Md. Second edition. 1937. 133 pages. Price $2.00.

Though entitled "A Brief Outline' this book is far more than simply an outline. Though limited in size to only a hundred and thirty-three pages, it contains many practical suggestions. Its list of "Don'ts" is particularly impressive and most valuable for teaching purposes. The work is profusely illustrated with illustrations of fair quality.

The author stresses conservatism, preferring methods other than metal fixation, except under exceptional circumstances. He stresses the method of treatment which will result in the most complete restoration of function. The book is well worth its price. J. B.

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**Synopsis of Gynecology**, based on the text-book, Diseases of Women. By Harry Sturgeon Crossen, M. D., F. A. C. S., Professor Emeritus of Clinical Gynecology, Washington University School of Medicine; Gynecologist to the Barnes Hospital, etc.; and Robert James Crossen, M. D., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine, Assistant Gynecologist and Obstetrician to the Barnes Hospital, etc. The C. V. Mosby Company, publishers, St. Louis, Missouri. Second edition. 247 pages. Cloth, $3.00 net.

This synopsis is written primarily for the medical student who plans to practice some branch of medicine not related to gynecology, but it should be of equal value to the student whose primary interest is gynecology. The latter will find it of convenient size to carry with him for quick reference in the clinic or while riding to and from class rooms and hospitals. The low price of the book may appeal also to the practitioner who wants a book on gynecology to refresh his memory. Since the synopsis contains the essential facts in the larger volume on Diseases of Women, the purchaser will get a lot of information at small cost. The specialist will prefer the larger volume.

C. K. W.

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**Synopsis of Digestive Diseases.** By John L. Kantor, Ph. D., M. D., Associate in Medicine, Columbia University; Gastroenterologist and Associate Roentgenologist, Montefiore Hospital for Chronic Diseases, New York. The C. V. Mosby Company, publishers. St. Louis, Mo. 1937. 302 pages. Price $3.50 net.

Mosby is publishing at this time a series of synopses of various medical specialties. Kantor has written the Synopsis of Digestive Diseases and has been very successful in culling out unnecessary material and limiting himself to the essential facts in his field. He has succeeded in presenting simply, clearly and concisely a picture of the diseases of the digestive tract. He has confined himself largely to organic diseases giving little space to the more frequently encountered functional disturbances. His charts are especially graphic and teach more in a minute's glance than could pages of description. Occasionally the reader will be disappointed in reading references to certain technical procedures which are not described in sufficient detail to be of value to one not already familiar with them. For example, the "double dose" in cholecystography is referred to but is not described in detail. The histamine and neutral red tests in achlorhydria are merely mentioned. As the book itself is good enough to become a permanent text-book or ready reference, the author will have an opportunity to correct these omissions in a later edition. C. K. W.

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**Short Wave Diathermy.** By Tibor de Cholnoky, M. D., F. A. C. S., Associate in Surgery, New York Post-Graduate Medical School, Columbia University. The Columbia University Press, Morningside Heights, New York City. 1937. 310 pages. Cloth. Price $4.00 net.

Short wave diathermy, like any new therapeutic procedure, has been proclaimed as a miraculous remedy by some, while its use has been deprecated by others. By presenting an outline of the subject in its present state of development with a survey of the laboratory and clinical work that has been carried out so far, the author has succeeded not only in presenting a fair evaluation of our present knowledge of short wave therapy but should stimulate more investigations in this field. Anyone interested in an unbiased opinion of the value of this form of therapy should get it from this book rather than be guided by the one-sided enthusiasm of a salesman of diathermy machines.

C. K. W.

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**Physicians And Medical Care.** By Esther Lucile Brown, Department of Statistics, Russell Sage Foundation. E. L. Hildreth and Co., publishers, Brattleboro, Vermont. 1937. Price $.75.

This monograph is one of a series dealing with the present status of certain established or emerging professions in the United States. Other monographs previously published have dealt with "The Professional Engineer" and "Social Work as a Profession." This one, as its title indicates, deals with the medical profession. Its earlier chapters interestingly portray the evolution and cleansing forces at play on medical education in this country, beginning at the dawn of the present century and continuing on until now. This panoramic sketch gives one a clear and faithful outline of one of the most signal accomplishments ever achieved—and, by forces working from within—by any profession, and which resulted in a complete revolution of the curricula and of the faculties then in the field of medical training. In this sketch, opportunity is taken to point out that, in the further perfection of teaching methods, the needs of modern society demand that still greater emphasis be placed on certain important phases of medical practise, notably public health, obstetrics and psychiatry. There then fellows a brief description of the leading national organizations whose interests and activities have wielded great influence in elevating and perpetuating high ethical standards in teaching, in licensure and in practice.

The chapters in which are discussed medical economics, the costs of medical education and of medical care, group practice, health insurance, both voluntary and compulsory, etc., are largely based upon reports and surveys made in quite re cent years, such as those emanating from the Committee on the Costs of Medical Care; the Bureau of Medical Economics of the American Medical Association, and the proceedings of its House of Delegates; the studies in health insurance made by the Michigan State Medical Society; the President's Committee on Economic Security, appointed by him in 1934, and many others. Here one finds assembled many viewpoints from many sources—but principally from sources advocating rather drastic departures from the present methods of delivering medical service.

The medical mind interested in keeping step with the modern trend of thought bearing on this exceedingly complex problem will find this little volume a convenient and ready reference book. Its author has performed her task painstakingly and well, although one may not be inclined to accept

the views or conclusions of the sources quoted or even her own. Her closing paragraph hints at the difficulties which lie ahead in efforts to find a final, satisfying solution. It is as follows: "That serious difficulties confront those who seek to devise means for extending medical care to the entire population while still preserving all that is best in medicine cannot be denied. They find the development of a cooperative and concentrated attack by persons capable of furnishing assistance slow to achieve, and they encounter numerous handicaps because the problem is interwoven with many of the larger economic aspects of our national life. But the importance of finding a solution is commensurate with the difficulty involved. The challenge that confronts them has been well described by Dr. Sigerist who insists that American medicine stands at the crossroads. By unremittingly purposeful effort it has equipped itself with hospitals, laboratories, schools, and well-trained physicians. At present it is faced with the greatest task of all, that of putting this artfully fashioned apparatus to work in such a way that all people may receive medical care. 'It is an enormous problem, requiring a great deal of courage; for it is a question of treading on new ground, of going along untried paths. A new frontier has been opened, and calls for another generation of pioneers.'"

J. M. G.

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**Synopsis Of Pediatrics.** By John Zahorsky, St. Louis University. The C. V. Mosby Company, publishers. St. Louis, Missouri. 1937. 359 pages, 77 illustrations. Price $4.00 net.

Omitting all reference to anatomy, physiology, pathology, bacteriology and chemistry, the author has presented his subject purely from the standpoint of practical clinical pediatrics. The condensation of material has been very successfully accomplished. Though the pediatrician will find this book too brief to serve as a quick reference, the general practitioner will find it an excellent guide to his pediatric practice and the student who is not primarily interested in pediatrics will find it a valuable text-book.

R. P.

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**Personal Hygiene.** By C. E. Turner, M. A., Dr. P. H., Professor of Biology and Public Health in the Massachusetts Institute of Technology. The C. V. Mosby Company, 1937, St. Louis. 335 pages.

The intelligent and understandable language used by Professor Turner in his book titled "Personal Hygiene" has a ready appeal to all who are called upon in any capacity to teach this important topic. It is written primarily for teachers and students in the higher education group. It contains sufficient details and references to give the pupil a sound idea of the subject.

The essential, present-day knowledge of personal health is made available within limited space so that the student who has comparatively small amount of time to devote to the topic may learn the fundamentals of personal health. The health knowledge contained in Professor Turner's book is of the nature that all educated persons should acquire. Sufficient anatomy, physiology and other underlying sciences are included to clarify and support the health teaching.

The chapter dealing with communicable diseases and immunity, for example, gives clear, condensed statements which should enable the teacher to point out to the student the nature of those diseases with which he is not already familiar.

The author has succeeded in covering his subject quite satisfactorily and the reader finds the subject matter to contain accurate information that is written in a most interesting style. The excellent way in which the subject is presented soon grips the interest of the student or teacher, personal hygiene becomes positively activated and there should develop the urge to attainment in health practices.

B. F. A.

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**A Text-Book Of Surgical Nursing.** By Henry S. Brooks, Jr., M. D., Instructor in Clinical Surgery, Washington University School of Medicine; Surgeon to the Out-Patients, Washington University Dispensary; Assistant Surgeon to Barnes Hospital. The C. V. Mosby Company, St. Louis, Mo., publishers. 1937. Cloth. 636 pages with 233 illustrations. Price $3.50 net.

This book would appear to be the most valuable of its kind that has been seen to date. There is sufficient amount of space given to the actual description of diseases and their pathological manifestations to cause the nurse to remain interested and secure a very comprehensive grasp of surgical diseases, as such. A great portion of the book is taken up in discussion of actual nursing principles concerned in the preoperative and postoperative care of patients. There are some extremely valuable illustrations in regard to draping and general setup of room for different types of cases. One chapter deals entirely with instruments; practically all kinds of instruments are photographed and described. There are also listed the proper instruments for various setups. This is a book which is valuable to the nurse and also extremely valuable to a teacher of nurses. The illustrations of pathological conditions are helpful and interesting. The first chapter dealing with relationship of nurse and patient might be profitably memorized by every person in the nursing profession. The book will likely receive a welcome in the field of medicine.

J. B.

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**The Larynx And Its Diseases.** By Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S., Professor of Bronchoscopy and Esophagoscopy, Temple University, Philadelphia; and Chevalier L. Jackson, A. B., M. D., M. Sc. (Med.), F. A. C. S., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University, Philadelphia. 555 pages with 221 illustrations including 11 plates in color. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $8.00 net.

After a long period of oblivion, the larynx and its diseases have been described in book form. Chevalier Jackson and his son have presented to the profession the most comprehensive book yet written on this intricate subject. Beautifully written and well illustrated it is a joy for anyone interested in the diseases of the throat to read any one of its thirty-seven chapters. The older Jackson has been a pioneer in this field and he can write with authority which is unquestioned. Specialists in the field of laryngology will find it essential to be familiar with the contents of this book and those interested in laryngoscopy will undoubtedly be the first to possess it.

F. M. T. T.

# *Miscellany*

DO YOU KNOW?

(A release of the Medical Society of the State of New York)

The world knew nothing of ice cream until America invented it and promoted its introduction in other countries.

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First bi-focal eyeglasses were invented by Benjamin Franklin.

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Moderate priced homes are being built in England on the pyramid idea, each floor having an open balcony.

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Homicides and suicides are decreasing with the improvement of economic conditions, but fatal accidents are on the increase.

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First instruction in first aid was proposed by George Ryerson Fowler and given in 1885 at the annual encampment of the New York State militia at Peekskill, N. Y.

It is estimated that there are 15,000,000 dogs in the United States.

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Scarlet fever is especially serious because of frequent after-effects, damage to ears, heart or kidney. The onset is marked by fever, sore throat, a general scarlet rash, and often the typical "strawberry" tongue. Children between five and ten years are most susceptible. The disease is highly contagious and requires the cooperation of the general public to enforce quarantine regulations and prevent its spread.

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Whooping cough is serious, especially to children in their first year of life. During the first week or two it resembles a cold. Then the "whoop" appears. Prompt medical care eases the spasms and may save a life.

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Addition of color to food serves no useful purpose, has no food value whatever, and merely pleases the eye. If inferiority is thus concealed, such coloring is unlawful under the national food and drugs law.




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# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 3** **Montgomery, Alabama** **September 1937**


## PRESACRAL SYMPATHECTOMY IN DYSMENORRHEA*


By
H. D. JOHNSON, M. D.†
Montgomery, Alabama


Dysmenorrhea may be either primary or secondary. The primary type, or the type which has existed since the first few menstrual periods, may or may not be associated with anatomical or pathological alterations in the pelvic organs. The secondary type is developed after the function of menstruation has become established, and is, in the majority of instances, associated with some pathological change. It is the primary type, especially those cases occurring without pelvic pathology, which has offered such a therapeutic obstacle. While the presence of definite structural changes causes one to feel safer in his prognosis in a given case, it is also a fact that the removal or correction of the same often fails to bring about the desired relief.

Dysmenorrhea varies in severity from a mild discomfort in the lower abdomen and back to intractable pain forcing the patient to bed, and it thus becomes a distinct social and economical handicap for a number of women.

Keeping pace with the many theories advanced as to the cause of dysmenorrhea, various treatments have been advocated. Finding that a given case cannot be explained on an anatomical or pathological basis, we begin therapy by directing our attention to the general health of the patient, hygiene, posture, regulation of bowel function, and to psychic factors. If such is of no avail, and this is frequently the case, we search for other methods. If the case is severe enough to warrant any operative procedure, we advise dilatation of the cervix, and we base our indication on the assumption that the cervical canal may at times be of such small diameter as to produce an obstruction to the outflow of menstrual blood, and, in spite of the fact that Novak has shown that the normal rate of flow is equivalent to approximately two-thirds of a drop per minute, the procedure is often efficacious. Whorton and Miller report that fifty to sixty per cent of their patients respond favorably to this operation. If the patient is married and nulliparous, we may advise her that pregnancy often brings about relief.

With the advent of endocrinology, and working on the assumption that dysmenorrhea may at times be caused by an imbalance between the delicately adjusted quantities of corpus luteum and female sex hormone available, another weapon was added to our therapeutic artillery. In the light of our present knowledge, it seems a rational procedure to administer female sex hormone to those cases having an associated hypoplastic uterus, and, perhaps, with an advancement of our knowledge of the endocrine glands as they affect the generative organs, organotherapy will occupy a prominent place in the treatment of this as well as many other gynecological conditions. In passing, I wish to mention the recent work of Altschul who has advocated the administration of insulin in the primary type of dysmenorrhea, and, while his series of cases is small, his results were good, and his method demands more thorough clinical investigation. Schwarz and Miller mention allergy as an etiological agent and report excellent results from the elimination of the offending substance from the patient's environment.

It is within the scope of this paper to neither make light of nor offer a substitute for any of the conservative treatments for dysmenorrhea, because I feel that every method at hand should be given a thorough trial before any of the more radical pro-

*Read before the Association in annual session, Birmingham, April 21, 1937.

†Associate Attending Surgeon, St. Margaret's Hospital.

cedures are carried out. It is lamentably true, however, that the results obtained from conservative methods are far from perfect, and patients not responding were formerly subjected to hysterectomy, x-ray castration or to the cruel effects of morphine. Compared with these latter procedures, a resection of the presacral sympathetic system is a conservative operation, and the excellent results reported in foreign and in American clinics, as well as in the small series of cases reported herewith, seem to justify this present publication.

In 1925, Cotte, substituting the resection of the presacral sympathetic system for the more difficult and more hazardous operations of Jaboulay, Ruggi and Leriche, described the operative technique as it stands today. He advocated the procedure for the relief of pelvic pain in general, but especially recommended it in cases of dysmenorrhea. So gratifying were his results that he largely gave up other methods of therapy such as cervical dilatation, and, while most gynecologists today consider this too radical, it nevertheless suggests the astounding results that he obtained. His work was widely accepted on the Continent, but it has only been within the past four or five years that American clinics have adopted the procedure. Since then contributions have been made by Adson and Masson, Counsellor and Craig, Decourcy, Wetherell, Keene, Black, Greenhill, Pemberton, and Cannady. Stacy and Shoemaker and Whorton have, in recent publications, given this operation a definite place in our therapeutic armamentarium.

Some idea of the anatomical and physiological aspects of the presacral sympathetic system is necessary to a proper understanding of the operation. As designated by Langley, the nervous system regulating the involuntary functions of the body, such as visceral and endocrine glandular control, is known as the autonomic system, and this system is composed of sympathetic and parasympathetic components. These components are antagonistic in their action, and normal function of organs supplied by them is a result of a delicately adjusted balance. Abnormal function resulting from a sympathetic-parasympathetic imbalance is demonstrated in the "cord bladder."

The presacral nerve, so-called by Laterjet, contrary to its name, is really prelumbar in situation, and is that portion of the abdominal sympathetic system extending from the bifurcation of the aorta to the sacral promontory, and lying behind the posterior parietal peritoneum in a triangle formed by the bifurcation of the aorta above, the two common iliac arteries on each side, and a line through the sacral promontory below. This triangle has been called the interiliac space by Elaut. The nerve assumes a plexiform arrangement in seventy-five to eighty per cent of cases, and, as suggested by Havelacque, would better be called the "superior hypogastric plexus." This plexus lies in the loose areolar tissue behind the peritoneum, and may be separated from it by fat. Often in thin individuals, where the retroperitoneal fat is scarce, the nerves can be seen through the peritoneum. In its lower portion the plexus overlies the middle sacral vessels. At the level of the first sacral vertebra this system divides into right and left hypogastric plexuses, and these extend into the pelvis along the lateral pelvic wall, giving off fibers to the lower ureters. In the lateral rectal space, at the level of the sacrouterine ligaments, the fibers composing these plexuses terminate in the ganglion of Frankenhauser (hypogastric ganglion). Here branches from the second, third and fourth sacral nerves (nervi erigentes), constituting the parasympathetic fibers, join the sympathetic system. Fibers then extend to the bladder, uterus, vagina and rectum. The nerve supply to the ovaries and tubes reaches them through the infundibulo-pelvic ligaments, and adnexal pain is therefore not amenable to presacral sympathectomy.

A review of the physiology of the autonomic system shows a series of conflicting opinions, and this led Davis to conclude that surgery of the system must rest upon an insecure foundation. In the last ten or twelve years, however, much has been learned concerning the functions of the system, both from cases having had presacral sympathectomy and from animal experimentation. The following, I believe, represents the concensus of opinion regarding the physiology of the pelvic nerves.

### PHYSIOLOGY OF THE PELVIC NERVES

*The Urinary Tract*: The sympathetic system is inhibitory to the detrusor muscle of

the bladder, and motor to the internal sphincter, while the parasympathetic system is motor to the detrusor and inhibitory to the internal sphincter. Learmonth and Braasch made cystoscopic studies on cases immediately after presacral sympathectomy and found that the internal sphincter, the trigone, and both ureteral orifices were relaxed. This disappeared after a short period of time, and they ascribed this to the inherent tone of the sphincter muscles themselves. Some urinary difficulties may be encountered after the operation, and a number of cases will require more catheterization than the ordinary laparotomy. Black reports two of his cases having urinary difficulties for three months, but there have so far been no cases reported in which there was permanent alteration of vesical function. Indeed, this operation has been done with gratifying results in "cord bladder," and Rankin has employed it in his combined abdomino-perineal operation for removal of the rectum, feeling that emptying will be more complete, and urinary complications fewer. The operation has been reported by a number of authors to relieve dysuria, and to add materially to the comfort of patients with interstitial cystitis and vesical malignancy.

*The Uterus*: That the nervous system has little if anything to do with uterine contractions is, I think, made evident by the experiment of Calliburce, whereby an isolated parturient uterus was observed to empty itself of the products of conception while suspended in Locke's solution, and by the observations of Mueller, Gertsmann and Brachet (as cited by Keene) of a labor proceeding unimpeded after complete section of the sacral spinal cord. Cotte states that in thirty pregnancies subsequent to presacral sympathectomy there was no instance of altered uterine contractility. Wetherell reports a case complicated by persistent posterior position of the occiput, but in which contractions were normal. Whether or not the presacral sympathetic system carries pain fibers from the uterus has been debated, but most authors now agree that it does. Labor pains have been observed to be much less in severity following presacral sympathectomy, and in Wetherell's case the labor pains were mild in character, and located in the lower back. The blood vessels of the uterus are constricted under sympathetic influence, and a relief of this constriction by section of the sympathetic system often manifests itself in a day or two after operation by slight uterine bleeding. The sympathetic system has an inhibitory action against the walls of the uterus in much the same manner as it does in the bladder, and relief of this inhibition has been attributed by some authors to be a cause of precipitate delivery.

*The Rectum*: Here again the sympathetic system has an inhibitory effect upon the walls, and is motor to the internal sphincter, the parasympathetic system being directly antagonistic. Some of the authors have reported cases of obstinate constipation relieved by this operation. This would be theoretically possible if the cases so cured were due entirely to inactivity of the rectal wall.

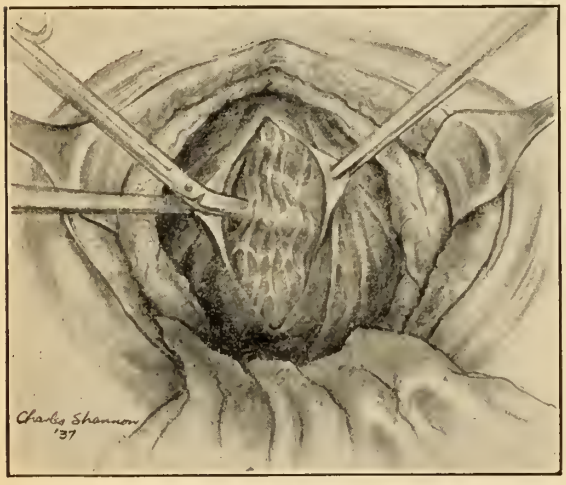
## THE SELECTION OF CASES

The selection of cases is of paramount importance, and the results of this operation depend not so much on the ability of the operator to find and resect the nerves as on selection of proper cases. The type of dysmenorrhea responding most favorably to the operation is the type in which the pain is located in the central and lower portion of the abdomen and back, or, in other words, over the area supplied by the nerve under consideration. Cotte, finding definite pathologic changes in the nerves themselves, named this type of dysmenorrhea "hypogastric plexalgia," and Wetherell, thinking that women having this deep, central type of dysmenorrhea fell into the "sympathetico-tonic" type whereby tolerance to painful stimuli was lowered, called it "intrinsic dysmenorrhea." Pain located over the adnexal regions, supplied as they are by the ovarian plexus, and due to ovarian, tubal, ureteral, appendiceal, or peritoneal pathology could hardly be expected to respond to resection of the presacral system. In addition to the essential type of dysmenorrhea, the operation may be done in conjunction with operative procedures correcting anatomical or pathological defects, and Cotte reports a series of two hundred cases in which this was done. The relief was substantially greater than in an equally large series in which this was not done. Black states that while dilatation of the cervix and the correction of retrodisplacements

will relieve dysmenorrhea in sixty-five per cent of cases, the same procedure combined with presacral sympathectomy will relieve nearly one-hundred per cent.

OPERATIVE TECHNIQUE

A lower median line incision gives better exposure of the interiliac space. With the patient in Trendelenberg position, the posterior parietal peritoneum overlying the interiliac space is incised longitudinally from the sacral promontory to the bifurcation of the aorta. With the peritoneal flaps retracted, blunt dissection of the areolar tissue is begun. The nerves usually lie in a fascial sheath separating the subperitoneal fat from the middle sacral vessels. Frequent




Showing the interiliac space exposed by retraction of the posterior parietal peritoneum. The fibrous sheath containing the presacral plexus has been incised, and dissection of the plexus begun. Note the root of the mesocolon on the left.

sponging will aid materially in locating the nerves, and the tenaculum is a very useful instrument. Care is taken to separate all of the plexus, since bad results follow an incomplete dissection. A ligature is passed around the isolated plexus above and below, and the resection accomplished. At times the root of the mesocolon extends across the interiliac space to the right of the median line, and in this case the operation is more difficult as well as more hazardous. Black reports one such occurrence in his series of twenty-seven cases. Care should be taken not to extend the dissection and resection below the level of the first sacral vertebra since the parasympathetic nerves may be injured and cause urinary disturbances of serious nature. The peritoneum is closed with plain catgut.

RESULTS

Counsellor and Craig, Adson and Masson report one hundred per cent relief in nine cases, ninety-five per cent in two, and seventy-five per cent in three. Meigs reports complete relief in twelve of fifteen cases, the others in this series being failures. In Black's series of twenty-seven cases, one of which could not be located for a follow-up record, nineteen were cured of dysmenorrhea and seven greatly improved, and in a recent personal communication with this author he stated that some of his most grateful patients belonged to the group having had presacral sympathectomy. Similiarly gratifying results have been reported by all authors having written on the subject. Craig believes that there will always be an average of ten per cent failures due to borderline cases, the patients suffering as a result of a "constitutional inferiority." Stacy and Shoemaker point out that "the nervous, high-strung girl is likely to become more nervous and introspective, and the family more concerned over the girl's invalidism following any surgical procedure." Where the nerve is single one may feel sure that all of the afferent pathways have been interrupted, but where the plexiform arrangement is assumed one is less sure.

CASE REPORTS*

*Case* 1: Colored female, age 28, married, para i. Complained of dysmenorrhea since the onset of menstruation, the pain beginning three days before the onset of the flow, and lasting during the entire period. Examination showed a retroverted uterus. At operation a suspension and prophylactic appendectomy were done, and the presacral system resected. For two days postoperatively the patient was catheterized, but otherwise her course was uneventful. She has been entirely relieved of dysmenorrhea.

*Case* 2: Colored female, married, age 17, one miscarriage sixteen months ago. Complained of dysmenorrhea since the onset of menstruation, the pain being so severe that she was forced to go to bed for two days each month. She also complained of dysuria. Examination showed a retroverted uterus. At operation a suspension, appendectomy, and a presacral sympathectomy were done. She had to be catheterized during the first twenty-four

*These cases were done by me while resident on the service of Dr. W. T. Black, Chief of the Department of Gynecology at the John Gaston Hospital, Memphis, and it is through his courtesy and kindness that I have been able to use them in this report. These cases were included in his excellent contribution to the subject (see bibliography).

hours. She has been entirely relieved of dysmenorrhea and dysuria.

*Case* 3: White female, age 31, widowed, para iii. Complained of severe dysmenorrhea of six years' duration. The pain was of such severity that she was forced to bed for five or six days with each period. Pelvic examination showed no pathology. At operation the appendix was removed, and a sympathectomy done, after which she had an uneventful postoperative course. At present she has some discomfort during the first day of her period, but is not forced to bed.

*Case* 4: White female, age 24, para i. Complained of severe dysmenorrhea of the primary type which had been unaffected by her pregnancy. No pathology was present, and at operation an appendectomy and presacral sympathectomy were done. It was necessary to catheterize this patient only one time postoperatively. Uterine bleeding occurred during the first few postoperative days. She has been entirely relieved of dysmenorrhea.

*Case* 5: White female, age 31, complained of dysmenorrhea which forced her to bed for two days each month, this having occurred since puberty. She also complained of sterility, backache, and low pelvic discomfort between periods. The uterus was found retroverted. At operation a suspension, appendectomy, and sympathectomy were done. For two days postoperatively she had some uterine bleeding. She has been entirely relieved of dysmenorrhea.

Discussion: Cases one, two and five were complicated by a retrodisplacement, and while it is problematical as to the relief that would have been obtained had only this displacement been corrected, the sympathectomy in each case was easily done, consumed little time, and added little if any to the operative risk. In cases three and four no other procedure than an appendectomy was done, and there can be little doubt as to the relief attributable to presacral sympathectomy.

## CONCLUSIONS

1. Presacral sympathectomy is a valuable addition to our therapeutic armamentarium.

2. It is a radical procedure, but when compared with hysterectomy, castration with x-ray, and to the administration of morphine, it is conservative.

3. The results of this operation depend upon the proper selection of cases. The type responding most favorably to the procedure is the primary type with no associated pathology, although the operation may be carried out, often with gratifying results, as an adjunct to other operative procedures.

4. All more conservative means of therapy should be instituted before resorting to this operation; otherwise it will lend itself readily to abuse.

5. There have been reported no disastrous after-effects of this operation, and libido, pregnancy, and parturition are unaffected.

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## DISCUSSION

*Dr. Chalmers Moore* (*Birmingham*): Dr. Johnson was kind enough to ask me to discuss his very excellent contribution from the viewpoint of neurologic surgery, an invitation which we were delighted to accept, of course.

In this discussion we are interested mainly in

the visceral afferent fibres that carry painful sensations. Even though these fibres may not be truly sympathetic, they course along with the true sympathetics and can not be differentiated from them grossly.

The important point, from the standpoint of neuro-physiology is the fact that the parasympathetic distribution to these organs plays no part in the transmission of painful stimuli. Furthermore, it is apparent clinically that at least the great majority of painful sensations find their way to the conscious centres from the pelvic organs by way of the superior hypogastric or so-called presacral plexus. It is this physiologic and anatomic knowledge which warrants the surgeons interrupting these pathways for the relief of pelvic pain.

A most important factor, as Dr. Johnson has pointed out, is the proper selection of cases for this procedure. Our own selection is based on a classification that is roughly as follows:

1. Cases in which no organic lesion is present.
2. Cases in which some slight lesion is present which obviously does not respond to ordinary gynecologic procedure, since pain persists after operation.
3. Cases of inoperable malignancies of the pelvis, and
4. Cases frequently associated with pelvic pain where there is a painful bladder spasm.

In addition to this we feel strongly that each case should first have a diagnostic novocaine injection of the ganglion, or its sympathetic communications, while a patient is having an attack of pain. If relief is produced in this manner, one may promise with certainty that permanent ablation of the sympathetic nerves involved will produce freedom from the symptoms: whereas, if relief is not thus obtained, it is folly to go further along this route.

No advance in the application of our knowledge of visceral neurology is of greater importance than the work of the past few years directed toward relief, not only of pelvic pain but pain elsewhere in the body as well. Atypical facial pain that is not true tic d. is an example of this. Also sympathetic nerve surgery has much to offer in angina pectoris and in the treatment of essential hypertension. We are consistently getting better than 50% favorable results in the latter. But that is another story, as Kipling says.

The work done in various types of pelvic pain illustrates clearly the newer conceptions of surgical therapy which are based on the application of physiology and neurology to clinical medicine, rather than placing primary emphasis on the pathologic end result.

*Dr. Gilbert F. Douglas (Birmingham)*: The nerve supply of the uterus includes both sympathetic and parasympathetic components. The sympathetic and parasympathetic include efferent and afferent fibers, the latter reaching the spinal cord by way of a detour to the posterior root. The nerve fibers in the wall of the uterus are derived from the great plexus, which is situated on each side of the body of the uterus and the broad ligaments.

This knowledge of the nerve supply leads to a rational conclusion, that to cut or sever the pathway of conductivity of the pain to the uterus gives relief in these intractable cases of dysmenorrhea.

As Dr. Johnson has well emphasized, the group of cases to be so treated should be well selected. If they are not properly chosen we cannot hope to obtain desired results from a neurectomy or presacral sympathectomy. Secondly, we shall be subjecting cases to laparotomies which otherwise might be relieved of their dysmenorrhea by rational conservative non-operative treatment.

To this group, which he has described as coming within the purview of operative domain, we certainly have something to offer. These cases of marked dysmenorrhea require the most astute and careful study. If we take time to study the endocrine glands properly we shall be able to arrive at a more sane conclusion as to the etiology of this most distressing symptom or pain of menstruation.

May we suggest that in our endeavor to approach these cases that we study with the pathologist the endometrial tissue. If such study is carefully carried out we shall be able to gain a good deal of information which will be helpful in our therapy.

As has been well expressed by Dr. Johnson in his most excellent paper, these cases of dysmenorrhea might be considered in two groups:

The primary, in which we shall be able to find some pathology in the pelvis or elsewhere accounting for the pain; and the secondary, in which we are unable to find a cause dependent on pathologic changes in the pelvis. In these cases we look for more relief from operative procedure.

No doubt, many of the failures in the operations are due to insufficient resection of these nerves, leaving some of the fibers, or from neuroma on the cut end of the nerve.

In summary, from a practical standpoint, may we suggest that the cases in which we have been unable to determine any pathology are the ones in which this operation should be done. This is not a serious operation. It should be emphasized that women who are incapacitated from one to four or five days every month on account of pain are entitled to and should have this operation.

*Dr. J. M. Mason (Birmingham)*: The paper of the essayist opens up one of the most fascinating subjects of scientific discussion, namely, surgery of the sympathetic nervous system.

The anatomy of the system has been thoroughly explored; the physiology presents many unsolved problems; and the surgery is still in the experimental stage.

In 1876 Bodard proposed cervical sympathectomy for the relief of Basedow's disease; and, according to Reid and Andrus (Dean Lewis' Surgery), this is the first suggested operation upon the system.

In 1881, Alexander of Liverpool ligated the vertebral artery in three cases of epilepsy and attributed his good results to interference with the sympathetic fibers. In 1899, Jaboulay suggested cervical sympathectomy for the relief of angina pectoris. The operation was carried out by Junesco in 1916. The subject has received renewed attention in recent years. In 1904, we saw Deaver resect the superior cervical sympathetic for epilepsy.

Leriche performed periarterial sympathectomy

for peripheral vascular occlusion in 1914. Hypertrophic pyloric stenosis of infants, and other spastic conditions of the intestinal tract have been subjected to operations on the celiac ganglion, while sufferers from scleroderma, magacolon, and a host of other conditions obscure in etiology have been subjected to various operations upon the sympathetic nervous system with varying degrees of success.

While historic references above quoted show that sympathetic surgery is not new, the real beginning of activity in America dates from the visit of Royle and Hunter, of Australia, in 1924, when the former delivered the John B. Murphy Memorial Address before the Clinical Congress of the American College of Surgeons, then meeting in New York, choosing as the subject "The Treatment of Spastic Paralysis by Sympathetic Ramisection"; and the latter presented a paper on "The Influence of the Sympathetic Nervous System in the Genesis of the Rigidity of Striated Muscle in Spastic Paralysis."

Since that date, Adson and other neurological surgeons have operated extensively, Crile has continued his brilliant investigations and operations, and it may be said that surgery of the sympathetic nervous system occupies a conspicuous place in the field of surgical advance.

When we consider that all vegetative functions of the body, all circulatory and secretory functions, in fact all functions which are carried on by smooth muscle fibers are regulated by the autonomic nervous system and are entirely beyond our voluntary control, the complexity of the problems of surgical relief of functional disturbances is at once apparent.

In support of the allusion to the experimental nature of operative intervention in disturbed functions of organs controlled by the sympathetic system, we must go back and see what operations have survived and what have been abandoned.

For example, cervical sympathectomy for epilepsy, migraine, and glaucoma has been abandoned or is but seldom employed. In bronchial asthma and angina pectoris conflicting reports have been published both in regard to sympathectomy and alcohol injections. The relief of hypertension by adrenal denervation and ganglionectomy is being, at the present time, subjected to extensive operative test and the outcome is awaited with great interest.

The immediate problem under discussion, the relief of dysmenorrhea by resection of the presacral nerve, is one of the most interesting applications of sympathetic surgery that has been devised.

The essayist has given in clear detail the operative steps, and has been most conservative and careful in his recommendations as to the cases in which the operation should be employed. Considering the large number of patients who suffer from severe dysmenorrhea, an operation as simple as the one under discussion is entitled to extensive trial in the hope that, in properly selected cases, it will prove to be curative.

Of the 52 cases cited in the paper, 40 were completely relieved; 9 received 75 to 95 per cent relief; 3 were complete failures. This high percentage of complete cures entitles the operation to further trial.

If the operation is not attended with unfavorable functional disturbances of the rectum, the bladder, or of sexual contact, we may expect much success to follow its employment. The essayist has fully discussed these matters.

We are inclined to consider the operation indicated as a primary measure in those cases of severe dysmenorrhea in which the patient has no demonstrable pelvic pathology and in which symptoms are of sufficient severity to demand the use of opium at each period. We think, also, that in cases where dysmenorrhea is a marked symptom and where the pelvis is subjected to operation for the correction of displacements or other pathological disturbances, presacral sympathectomy may well be made a step in the operative detail. It would add but little to the time of operation and nothing to the dangers, while it might make a great deal of difference in the degree of success attained.

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## THE PSYCHOGENIC FACTOR IN DISEASE*

By
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Only when we gather together the papers which have of late been written on the psychogenic factor in disease do we realize what a part this outlook on medicine has assumed in our literature. When we read these contributions we obtain an inkling, not only as to their number, but as to their worth. Many of them have been compiled by the adroit and clever minds in medicine, by those whose experiences have been wide and catholic. Many—it will be noted—are given expression by those whose years of practice have been long.

There is nothing new in the idea that the mind is the predominating influence in ills of the flesh; that it is indeed *the* influence which determines not only the incidence of disease but its outcome as well. Words which express these ideas are to be found on many pages of the Christian Bible, and are centuries older than any system of material healing known to us. The idea that the body in sickness and health is or should be the slave of the spirit is an idea as old as humanity, and formed the basic principle of healing the sick before the medical profession, as we know it, was even thought of. Houston brings this fact out in his recent book. True it is that we have made the mistake of magnifying the importance

*Read before the Association in annual session, Birmingham, April 21, 1937.

of the material. We have extolled the "salutary lessons of the dead house"—all unmindful of the fact that many of the secrets there disturbed must—on account of our imperfect technique of detection—remain secrets indeed for many years to come.

Physicians through the ages have been the slaves of their senses, believing only in what they could bring into their conscious understanding; what they could see, hear and touch. They have avoided all the forms of healing which depended for their efficacy upon mental effects, and condemned such schools as varying forms of quackery.

Hahnemann and his followers healed many through faith as we now believe. All the various cultists, ancient and modern, made this same appeal, and at times with the same startling results. Now we are moving in the same general direction, so far at least as to our conceptions regarding the causes of disease. We are beginning to give to the emotions some recognition in the part which they play in our well-being. In nineteen hundred twenty-one, Kempf placed these prophetic words in the introduction to his Psychopathology: "When the physician and surgeon come to realize the tremendous influence of the repressed hypertense or hypotense autonomic segment and its local circulatory system as an influence in recoverability from infections, diseases and surgical shock, the localization of destructive germ colonies, and derangement of metabolism, a new epoch in the progress of medicine will begin. The psychopathologist, physiologist and clinician have enormous unexplored fields of research open before them in this direction. Means for training men to carry on this work should be established by the medical schools."

It is apparent that the reason the profession as a whole was so slow to admit the tremendous part which the emotions play in the beginning and end results of disease was the lack of logic in any such position. Until recently at least there seemed to be no connecting link between cause and effect. Things are changing rapidly now. Through our knowledge of the workings of the ductless glands we are able to obtain a glimpse at least of what it is all about. These things we have learned: our emotions are the masters of ductless gland secretion. It is in response to joy, hate, and fear that the blood streams of human beings are flooded with the magical substances that control the nutrition of their organs, that control the autonomic mechanism of their hollow viscera, that direct the quantity and quality of the digestive juices, that in a word for better or worse makes the personality of each one of us what it is. What a strange blind spot is displayed in the human brain when we are willing to believe that people are well because they are happy, as we all do believe; but we are unable or unwilling to acknowledge the antithesis of this fact and to reason that people are not well because they are unhappy.

The part which our emotions play in our sickness and our health must be great indeed; just how important we will only realize with the flight of time. It is reasonable to believe that some of the prophecies contained in the words of Kempf, particularly those with reference to the training of minds for this work, will shortly be realized.

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# CARCINOMA OF THE CERVIX*

## REPORT OF 186 CASES

By
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This report includes all cases of carcinoma of the cervix diagnosed at the Employees' Hospital, Fairfield, Alabama, from 1924 to 1932.

### NUMBER OF CASES

Total number of cases.....186
White .....98 or 52.68%
Negro .....88 or 47.32%

Note: The admissions at Employees' Hospital will run almost equal, white and Negro.

### AGE

Youngest patient.....19 years
Oldest patient.....72 years

The majority of the cases occurred in the third and fourth decades. (Fig. 1).

### NUMBER OF CHILDREN

Only four patients gave a history of having had no children and no miscarriages, a percentage of 2.15. One or more pregnancies had occurred in the remaining 97.85%, the greatest number of pregnancies occurring in one individual, namely, 21.

### MARITAL STATUS

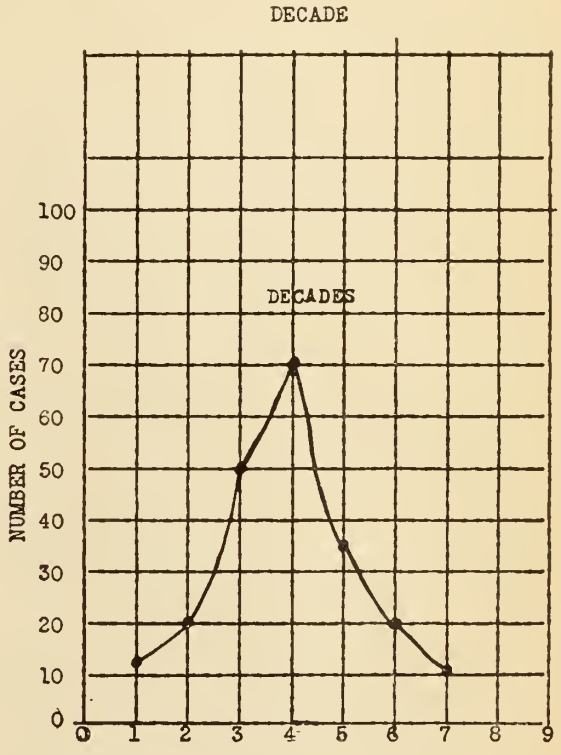
Married .....180
Single ..... 3
Unknown ..... 3

*Read before the Association in annual session, Birmingham, April 21, 1937.

### GENERAL APPEARANCE OF PATIENT

Poor .....43 or 29%
Good .....52 or 28%
No comment .....80 or 43%

Note: These remarks were taken from the physical examination.




### DURATION OF SYMPTOMS BEFORE DIAGNOSIS

54 or 29.0% had symptoms less than six months before diagnosis.

75 or 40.3% had symptoms less than one year before diagnosis.

23 or 12.4% had symptoms for more than one year before diagnosis.

34 or 18.2% did not know how long the symptoms persisted before diagnosis.

Earliest diagnosis after symptoms.....10 days.

### HEREDITY

6.98% gave a family history of carcinoma.

27.90% gave a negative history of carcinoma.

65.12% did not know.

### SYMPTOMS

Bleeding .....104 cases or 55.8%
Pain ..... 78 cases or 41.4%
Discharge ..... 56 cases or 30%

Most patients had more than one of these symptoms.

CLINICAL TYPE OF LESION

(According to Radiological Subcommission of the Cancer Commission of the Health Organization of the League of Nations in 1929.)

Type I. The growth is limited entirely to the cervix, the uterus remaining mobile and no paracervical induration is detectible.

Type II. The growth is spread to some portion of the adjacent vagina with or without some induration of the cervical parametrium, the uterus still retains a degree of mobility; the so-called borderline group.

Type III. There is partial or complete fixation of the uterus with induration and thickening of one or both cervical parametria out to the pelvic wall. This is generally regarded as an inoperable condition. Under this division are included cases in which there is more or less superficial infiltration of a large portion of the vagina, with the movable uterus or isolated metastases. Isolated metastases in the pelvic glands from a small primary growth are also included.

Type IV. This group includes cases in which the cancer has invaded adjacent viscera, has extensively enveloped the vagina or produced metastases. It is the hopeless group.

| | | |
|---|---|---|
| Type I | 14 cases or | 7.5% |
| Type II | 28 cases or | 15% |
| Type III | 51 cases or | 27.5% |
| Type IV | 98 cases or | 50% |

Pathological sections were done only in the early doubtful cases. Only sixteen cases had biopsies. At the time these cases were being treated it was the opinion of some that biopsies were injurious so we used them only in the early doubtful cases which were 8.6% of the total. Of these 16 cases, 7 cases or 43.75% were squamous cell carcinoma; 4 cases, or 25%, adeno-carcinoma, and 5 cases, or 31.25%, transitional cell carcinoma.

LABORATORY FINDINGS

*Blood*:

2.6% showed less than 2,000,000 red blood cells.
5.9% showed less than 3,000,000 red blood cells.
34.4% showed less than 4,000,000 red blood cells.
56.9% showed above 4,000,000 red blood cells.
2.10% hemoglobin below 20%.
1.05% hemoglobin below 30%.
1.60% hemoglobin below 40%.
1.60% hemoglobin below 50%.
3.20% hemoglobin below 60%.
11.80% hemoglobin below 70%.
56.70% hemoglobin below 80%.
3.20% hemoglobin below 90%, and
1.05% hemoglobin below 100%.
The average white cell count ..... 9,000
The highest white cell count ..... 20,000
The lowest white cell count ..... 6,000
98 patients had had Wassermanns. Of these 16.3% gave a positive report, 83.7%, a negative report.

*Urine*:

115 patients showed negative urinary findings—60.80%.
71 cases showed positive results for albumin, sugar or pus—39.80%.

CONCURRENT DISEASES

| | |
|---|---|
| Hypertension | 9.1% |
| Syphilis | 8.9% |
| Uterine fibroid | 2.6% |
| Pellagra | 2.6% |
| Chronic nephritis | 2.25% |
| Pulmonary tuberculosis | 1.05% |
| Carcinoma of breast | 1.05% |
| Peptic ulcer | .75% |
| Acute nephritis | .75% |
| *Pregnancy | .75% |

EXTENSION

43.8% had extension to the bladder, rectum or fundus.
3 cases had fistulae.
1 case had metastasis to the pelvic bones.
Metastases other than local were not demonstrated.

TREATMENT

*Surgical*:

| | |
|---|---|
| Vaginal hysterectomy | 8 cases |
| Supravaginal hysterectomy, with cauterization of the cervix | 2 cases |
| Complete hysterectomy | 2 cases |

*Radiation*:

| | | |
|---|---|---|
| Radium alone | 15 cases or | 8.0% |
| X-ray alone | 102 cases or | 54.8% |
| Radium and x-ray combined | 38 cases or | 20.30% |
| Surgery and radiation | 2 cases or | 1.07% |

(These two cases were included under surgical treatment)

| | | |
|---|---|---|
| Not treated | 19 cases or | 11% |

Average milligram hours of radium 1,934. This was given with 1 mm. brass filter, 1 mm. al filter.

*Not a disease.

Average milliampere minutes of x-ray—4,839. This x-ray was given with a 200 K. V. machine, 52 cm. distance, ¾ mm. Cu. 1 mm. al filter using 5 ma. The approximate output would be about 10 r per minute.

PER CENT OF CURES OF CASES TREATED

| | |
|---|---|
| Type I | 8.40% |
| Type II | 4.20% |
| Type III | 1.80% |
| Type IV | .60% |

Out of the 186 diagnosed cases 89.0% of the cases were treated.

Total patients alive after five years—25 or 15.1% of treated cases well after five years. Out of the 165 patients treated, 126 could be followed so if we include only the cases followed five years and have 25 cases well out of 126 cases the per cent will be 19.80% five year cures.

CASES OF X-RAY TREATMENT

Out of the 102 patients treated by x-ray alone ten were well at the end of five years, a percentage of 9.8%.

Fifteen patients treated by radium, two were well at the end of five years giving 13.33% cures.

38 patients treated with x-ray and radium combined—9 were well at the end of five years giving 23% cures.

Out of the 12 patients treated by surgery, four were well at the end of five years. Three of these patients received supplementary radiation which was 24.99% cures.

Surgery alone, only one patient or 8.33%.

CURES ACCORDING TO TYPE

(25 Cases—5 Year Cures)

| | |
|---|---|
| Type I—14 cases | 56.00% |
| Type II—7 cases | 28.00% |
| Type III—3 cases | 12.00% |
| Type IV—Only 1 case | 4.00% |

The type IV case was somewhat questionable.

## CONCLUSIONS

From our cases reported the following may be concluded:

About equal numbers of cases between whites and Negroes. The greatest incidence of cancer of the cervix occurred in the third, fourth, and fifth decades, the majority occurring in the 4th decade. Multiparas furnished 97.85% of the cases. Only 2.15% occurred in women without children. Only three cases occurred in unmarried women. Very little could be judged by the general appearance of the patient as 50% of them appeared healthy. The majority of the patients had symptoms more than six months before diagnosis, the most common symptoms being bleeding, pain, discharge. One or more of these symptoms were present in all cases. More than 75% of the patients had extensive involvement before diagnosis was made. Only 7.5% were diagnosed in the early type. Only 6.98% of the patients gave a positive history of predisposition. The blood findings were of no great significance in early cases. There were very few patients showing anemia until advanced stage. Very few urinary findings noted. The Wassermann was positive in 16.3% of the cases. The most common concurrent diseases were hypertension, syphilis, uterine fibroid and pellagra. Only two cases were complicated by carcinoma elsewhere. One case was complicated by pregnancy. Extension rather than metastasis was noted in our series of cases. Treatment in our cases was mostly by radiation, although this radiation was done under the old idea and very few patients received sufficient treatment. The per cent of cures was in direct relation to the type, Type I having 56.00% cures, whereas Type IV only 4.00%, and this somewhat doubtful. Of the cures 84.00% were Type I and II. Out of the total cases treated, which were 98% of the total, 15.1% were five year cures. Of the 165 cases treated, 126 were followed for five years so if we count only our followed cases 19.8% were five year cures. From this small series, surgery, radium and x-ray showed 24.98% cures; whereas surgery alone showed 8.33%. Radium and x-ray 23%. Radium alone 13.33%. X-ray alone—9.8%.

From this we would judge that surgery, radium and x-ray were advantageous treatments although, without the additional radiation, surgery falls far below radium or radium-x-ray combined.

## DISCUSSION

*Dr. K. F. Kesmodel (Birmingham)*: Dr. Peake has given us some interesting information concerning carcinoma of the cervix and its treatment. I cannot add anything to what he has said nor can I argue with him. I would like to emphasize some points of his talk.

It is interesting to note that of the 186 cases, only 14 were of clinical Type I, whereas 93 cases, exactly half, were Type IV. Now look at the cures. Of the 25 cases free of symptoms at the end of five years, only one was of Type IV—and this was a doubtful classification. On the other hand one hundred per cent of the Type I cases were cured. This is most interesting. It proves conclusively that early cancer is curable. It is something for which the institution at which these patients were treated can be justly proud. This represents careful study of all cervices presented. It represents adequate treatment of the lesions encountered. It is the result of immediate treatment as against delay.

I cannot emphasize this fact too much. Delay has caused many a physician to sign a death certificate.

In the April 3rd number of the Journal of the American Medical Association there is an interesting and illuminating article on pseudomalignant and precancerous lesions of the cervix by Doctor Emil Novak. If we all carried out the regime suggested by Dr. Novak, there would be a tremendous reduction in cervical carcinoma. Adequate treatment of the cervical lesions preceding carcinomatous change and invasion would practically eliminate this disease.

In closing, I would like to mention something about treatment. Today, we hear more and more of higher voltages. There is still some doubt as to the value of the million volt therapy. This must necessarily result in institutional treatment. Not many states can afford such apparatus. However, 400,000 volt machines are being manufactured and are of such construction that they may be easily used in office or hospital practice.

But even with our 200,000 volt machines, we believe we are obtaining better results. Since the advent of the "R-meter," an instrument for measuring the output of the x-ray tube under varying conditions, we can measure the dosage more accurately. Formerly we hardly dared give more than a single erythema dose (approximately 550 R's with 0.5 mm. copper) over a period of a few days. Now we know that by spreading this over several days we can give 1500 to 2000 R's. By increasing the filtration and lengthening the period of time over which the treatments are given, we can increase even to 5000 and 6000 R's. This is the so-called "Coutard technique" or "protracted" method. Small doses are given on successive days. We believe we are obtaining better results in the deep seated malignancies, such as carcinoma of the cervix, with this method.

Again I wish to express to Dr. Peake my appreciation of his very interesting presentation.

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Rat Bite Fever—Isolation is unnecessary since transmission of this disease from man to man is unknown. The local lesion needs no particular treatment. General measures such as ample food and fluids, analgesics and nursing care are important. Neoarsphenamin when given intravenously (.3 grams to .45 grams) every three to five days for three injections is usually sufficient to eradicate the infection. —*Walker, Virginia Medical Monthly, Aug.* '37.

# HYPERTHYROIDISM

## IMPORTANCE OF EARLY RECOGNITION AND TREATMENT

By
JOHN M. WILSON, M. D.*
Mobile, Alabama

That early hyperthyroidism is frequently unrecognized or inadequately treated is evidenced by the frequency of advanced hyperthyroidism with its often disabling and sometimes fatal sequelae.

That the economic loss caused by hyperthyroidism is considerable is shown by the number of men and women who, finally, not only become unable to carry on their usual work, but frequently become acutely sick and sometimes fatally so.

If one were to communicate with the Bureaus of Vital Statistics of the various states as to the thyroid deaths we believe the great majority would be from hyperthyroidism.

It is the long standing hyperthyroidism that is so liable to result in crisis, serious cardiac disorder, emboli, hypertension, liver and muscle changes, and even nervous and mental disorders. It is not so unusual to see patients who have been treated for so-called "nervous break-downs," "heart trouble," or some other condition over a long period of time who in reality have been suffering with hyperthyroidism.

Since permanent damage may result from and the ever present danger of thyroid crisis as the result of the effects of long standing hyperthyroidism, the importance of early recognition and treatment of such cases is evident. Chances of cure of hyperthyroidism (toxic goiter) are excellent if treatment is instituted early. In advanced, severe hyperthyroidism where liver function is lowered, serious cardiac and other changes have taken place, some mortality is unavoidable. This is true regardless of the kind of treatment. Some cases of long standing reach such stage where a crisis or acute heart failure may prove fatal before surgical treatment can be considered.

As to the recognition of hyperthyroidism a careful history should be taken. Subjective and objective symptoms should be noted. Hyperthyroidism may be associated with one of three types of goiter: (1) Toxic Diffuse (either with or without exophthal-

*Member of the American Association for the Study of Goitre.

mos) ; (2) Toxis Nodular (toxic adenomatous) ; and (3) Mixed Type.

In the first, or toxic diffuse type, although hyperplasia is present, there may or may not be enlargement of the thyroid gland. Usually the gland is symmetrically enlarged and firm (in contradistinction to the soft symmetrical enlargement of simple goiter). The fact that no appreciable enlargement is apparent in many cases is often the cause of late diagnosis. Some of the cardinal symptoms in this type goiter are tachycardia, nervousness, increased appetite, heat intolerance, tremor, moist skin, usually increased metabolism—and in the exophthalmic variety, exophthalmos. As the disease progresses hypertension may ensue and increased pulse pressure is almost invariably present. If the condition is allowed to progress further the above named symptoms, of course, become more marked, and serious cardiac, liver, muscle and other changes most likely follow.

In the toxic nodular type there is a nodular enlargement of the thyroid, tachycardia, nervousness, tremor, usually increased metabolic reading, and there may or may not be increased appetite.

If the disease is allowed to progress, hypertension, serious cardiac and other changes most likely occur. In the mixed type goiter there is, of course, a nodular enlargement and also symptoms and findings (probably exophthalmos) of the toxic diffuse type.

While we give due consideration to laboratory findings and recognize their value in diagnosis, we rely principally on the clinical picture. For instance the metabolic reading, which is considered within normal range at a plus or minus ten, probably holds good in only about eighty per cent of cases. If a patient had a normal reading of say about minus twenty and the metabolic reading showed it a plus ten, it is readily seen there would actually be an increase of plus thirty. Then, too, we have to allow for mechanical errors. In other words, we would not consider a case necessarily hyperthyroid on an increased metabolic reading without clinical findings and vice versa. There is an increase in blood iodine in probably seventy per cent of cases.

As to treatment it has been our observation that subtotal thyroidectomy is the most certain method of positively, completely and permanently curing these patients.

Sometimes it happens that a patient suffering with toxic goiter has certain other conditions that require surgery for their relief. For instance, in a hyperthyroid patient, gallstones, hernia, diseased tonsils, or other conditions might be found. It is usually the better plan, and is ordinarily to be advised, that the toxic goiter be removed first, since sometimes any surgical procedure may precipitate a dangerous crisis. Of course, we make exceptions to such conditions as acute appendicitis or any other of an emergency nature.

Much care is necessary not only in preparing toxic goiter patients for operation but in selecting the proper time and type operation to be done.

Several days to a week of rest in bed, proper sedation, diet rich in carbohydrates and low in protein, and the administration of iodine, usually in the form of Lugol's solution, should be carried out before thyroidectomy is done in cases of a lesser degree of toxicity. In the more severe cases ten days to two weeks or even three weeks of such treatment may be indicated before thyroidectomy, depending upon the response to preparatory treatment.

If there is cardiac deficiency digitalis is useful. We do not give it routinely, realizing that the rapid heart is due to an excess of thyroid secretion and will very probably continue until the cause is removed. When digitalis is used we prefer to discontinue it a short time prior to the operation.

Quiet is absolutely necessary in preparing a patient for operation. It is best that they have very little, if any, company. Requiring considerable intake of food, they should have a plentiful carbohydrate diet and should ordinarily be given some nourishment in the evening several hours after their dinner. Alcohol, coffee, tea and tobacco should be interdicted.

Iodine is a most useful drug in helping to bring about the remission of the disease so necessary before surgery, and while its proper administration has helped to lower mortality and has greatly decreased the necessity for stage operations, at the same time its use has been very much abused. Under its administration, supplemented by rest, suitable sedation, proper diet, and dig-

italis when it is indicated, metabolism as a rule decreases, the pulse rate drops, nervousness is very much decreased and the patient is usually calm and has a feeling of well being. This is the time for operation, because this state of improvement is temporary only and has not struck at the root of the trouble. Hence we see that iodine should be administered not as a curative remedy, because it does not cure toxic goiter, but should be used as an aid in preparing the patient for surgery.

After the remission following the administration of iodine is over and the syndrome of the disease recurs in possibly a more severe form, we are not apt to get the same happy response to iodine that was obtained in the first instance.

Then, too, it is much more difficult for the surgeon to gauge the severity of the case and is somewhat handicapped in choosing the type of operation if the patient has had iodine before coming under his care. It is to be remembered then that iodine does not cure the disease, therefore should not be used indiscriminately, for in doing so one of our most valuable aids is abused and possibly lost. Due to lowered liver function and increased combustion, the intravenous administration of glucose before, during and after thyroidectomy is of great benefit in the advanced cases. We frequently administer iodine in the intravenous glucose drip in severe cases.

Sometimes the immediate result following thyroidectomy presents one of the most dramatic pictures in surgery. The patient may border on or even go into a thyroid crisis which is evidenced by high temperature, very rapid heart, often nausea and vomiting, diarrhea and at times delirium. This condition is most often seen in those patients who have had hyperthyroidism over a long period of time. As to the treatment of the crisis, prophylaxis takes first place—that is the instituting of adequate treatment before the patient has reached that stage where crisis is apt to occur. When crisis does occur the temperature is lowered by the use of ice bags and sponging (much care should be exercised in applying ice to avoid a too low drop in temperature), intravenous drip of ten per cent glucose in which fifty drops of Lugol's solution have been added to the one thousand cc. of solution, the cautious use of digitalis if indicated, and sufficient morphine or suitable substitute to insure proper quietude. Frequently the glucose drip is supplemented by the intravenous injection at intervals of fifty cc. of fifty per cent glucose. Proper nursing is essential in the care of the hyperthyroid patient. It is very important that nurses caring for these patients should have special training for this class, so they will be alert and able to recognize the signs and symptoms of an impending crisis and be familiar with and able to carry out the so necessary nursing procedures required in the very sick cases.

Due to the potential dangers and complications in this particular locality the operation for goiter will always rank high in major surgery.

We shall not go into detail as to technique of operative procedure, but at this time we strongly favor local anesthesia, supplemented if necessary with nitrous oxide and oxygen gas. It is, of course, important that during operation every effort be made to protect the recurrent laryngeal nerves and parathyroid glands.

Experience is our best guide as whether to do a hemithyroidectomy or a bilateral resection. If a unilateral resection is done, the patient should be told that within six weeks the second stage is to be performed. The feeling of well being following the first stage may make the patient think he is cured, but such is not the case.

If, in any degree, morbidity and mortality have been reduced by encouraging earlier recognition and appropriate treatment in this type of cases, the words of this article will not have been in vain.

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**Radiation Therapy in Carbuncles**—If treated early, the infection may be aborted entirely and in a few days the redness disappears. If the infection has progressed sufficiently before treatment (within twenty-four to thirty-six hours suppuration has taken place) evacuation should be done and in five to seven days the lesion should be healed. This can usually be accomplished by a trochar or small needle, for by this time the pus has become thin and watery. The results of early radiation of carbuncles about the face, especially the nose and upper lip which, on account of the rich lymphatic supply, are always dangerous to tamper with, are gratifying. It assists in localization and promotes early suppuration, relieves the pain and usually an excellent cosmetic result follows.—*King, South. M. J., Sept.* '37.

# URETERODURAL ANASTOMOSIS IN HYDROCEPHALUS

By
WILLIAM R. MEEKER, M. D., F. A. C. S.
And
J. O. MUSCAT, M. D.
Mobile, Alabama

Internal hydrocephalus may be either obstructive or communicating. In the obstructive type there is an occlusion of the aqueduct of Sylvius or of one of the foramina of the ventricular system. In the communicating type there is free communication throughout the entire ventricular system, as well as between the ventricles and cisternae at the base of the brain. In reality, both forms of internal hydrocephalus are obstructive in nature because there is interference with the circulation and absorption of the cerebrospinal fluid. This may be produced by congenital defect or developmental failure, by infection, or by injury. The developmental defect of spina bifida may be associated with hydrocephalus, and the latter often follows operation for the meningocele accompanying spina bifida.

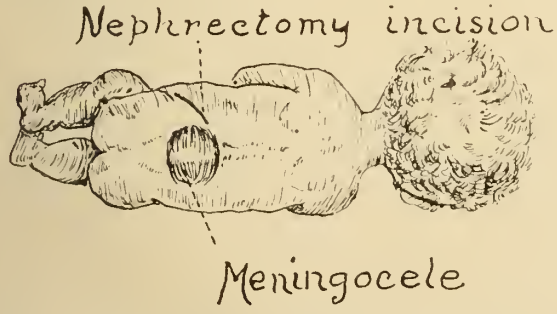



Fig. 1. Nephrectomy incision with relation to the spina bifida.

Spina bifida is more common in the lumbosacral region. The roots of the cauda equina or even the lower end of the spinal cord may be extruded through the bony defect into the meningocele. There is also great variation in the shape of the meningocele sac. In some instances a large sac may be connected with the cerebrospinal space by a very small opening, the whole pedicle being small. In others there is a long wide opening into the neural canal, the spread out cord lying in the bottom of a shallow trough. In the first instance the repair of the meningocele is simple, while in the latter it may be entirely impossible to reconstruct a normal dural sac.

In those cases in which there is an accompanying hydrocephalus any form of operation for the meningocele is doomed to failure unless the hydrocephalus can be relieved or controlled. In such cases repair of the meningocele usually causes an increase in the progress of the hydrocephalus and there is always the hazard of a cerebrospinal leak at the site of operation, usually with resulting infection.

Many operations have been devised and suggested for the relief of hydrocephalus. Corpus callosum puncture, excision of the choroid plexus, and the introduction of a silver tube or transplants of blood vessels to establish a communication between the dural sac and the peritoneal cavity have all been tried. Obviously, relief of the hydrocephalus by drainage of the spinal fluid is only possible in those cases in which there is no obstruction of the circulation of the spinal fluid.

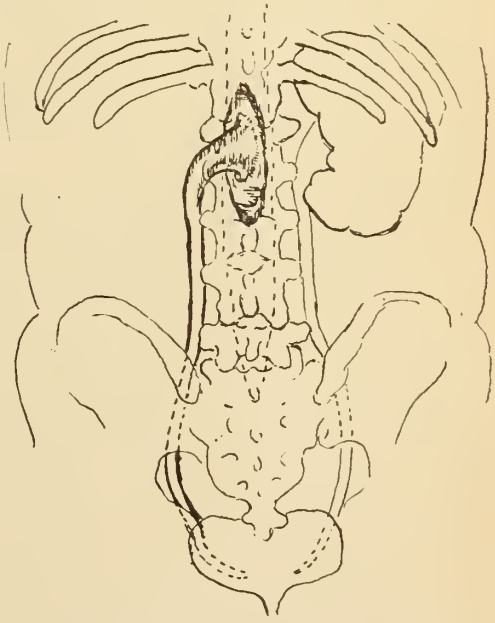


Fig. 2. After removal of the left kidney the ureter and its pelvis have been drawn through a tunnel in the muscles of the loin and sutured to an opening in the dura.

An operation for permanent drainage of spinal fluid into the urinary bladder was first performed by Heile of Wiesbaden. His operation, briefly, consists of unilateral nephrectomy followed by anastomosis of the upper end of the ureter (renal pelvis) with an opening into the lumbar dura mater. He experimented with ureterodural anasto-

mosis in dogs and studied results. Injections into the ureter with contrast media for x-ray examination showed that the fluid could be injected into the dural canal. Microscopic sections of the anastomosis showed satisfactory healing. The anastomosis remained patent and there was no reaction between the dura and the ureter.

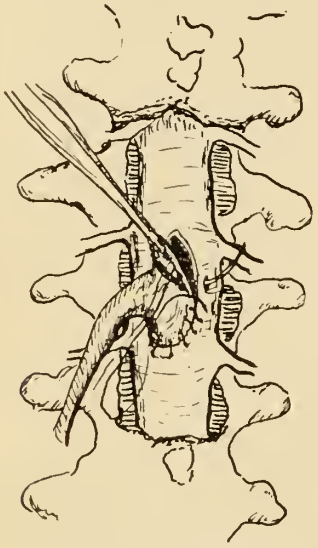


Fig. 3. Anastomosis of pelvis to the dura.

His first human case was that of an infant who developed hydrocephalus as a result of an operation for spina bifida. There was an intermittent fistula at the site of the spina bifida repair. When the fistula was open the child's condition was satisfactory, but when it healed over there was increasing hydrocephalus and spasm of the legs. The head increased in circumference as much as three centimeters in ten days. When as much as one hundred centimeters of the spinal fluid were withdrawn the spasms were benefited, but only temporarily.

At operation laminectomy with exposure of the dura was performed just above the site of the spina bifida operation. The left kidney was then delivered through a nephrectomy incision and the renal pelvis cut across at the attachment of the kidney. A canal was fashioned through the lumbar muscles and the end of the ureter drawn through to the dura. After closure of the kidney incision the renal pelvis was then sutured to the dura and the laminectomy incision closed. A normal convalescence followed. The child developed normally and there were no further convulsions.

Further operations of this type have been performed by other surgeons with indifferent results. There has been a high percentage of deaths and failures to improve. The present status of the operation has thus not been accurately determined. Probably the results so far available do not in any case warrant an absolute recommendation of this operation for hydrocephalus. But the extremely distressing picture presented by these patients and the present state of helplessness of all other therapeutic measures have stimulated us to attempt Heile's operation. We believe our case possesses sufficient interest to merit the following report.

REPORT OF CASE

G. D., a colored baby, five months old, was sent to the City Hospital by Dr. J. Mac Bell with a diagnosis of meningocele and spina bifida. The condition dated from birth, which was a normal delivery. There had been no other illness and the baby was well nourished and otherwise normal, except the characteristic deformity of the lower extremities.

In the lumbar region was a soft tumor mass, somewhat loculated and about the size of a grapefruit. The overlying skin was thin and glazed. There was a history of repeated aspirations of spinal fluid, and the sac had also ruptured on one occasion, drained and collapsed.

Two days after admission the meningocele was removed. The dural sac was dissected away and certain nerve filaments necessarily divided. The connection with the spinal canal was small and pedunculated, so closure by overlapping flaps was easily performed. Healing was delayed by leakage of spinal fluid but was complete after three weeks and the baby taken home.

Three months later definite signs of hydrocephalus had developed. The circumference of the head had increased from 18½ to 20⅛ inches. The fontanelles were widely open, somewhat bulging and sutures beginning to separate. The baby was somewhat undernourished, irritable and had poor voluntary muscular control of the head.

At eight months of age he was again admitted to the City Hospital for the purpose of a ureterodural anastomosis. The presence of two normally placed kidneys was first demonstrated by Drs. Townsend and Boudreau by injection of skiodan into the longitudinal sinus and subsequent x-ray. Under ether anesthesia, laminectomy with exposure of the spinal meninges was performed at the site of the old meningocele repair. A left nephrectomy was then performed, leaving the entire kidney pelvis on the end of the ureter. Through a tunnel in the muscles of the loin the ureter was brought up to the spinal dura without tension. With very fine chromic catgut the pelvis was then sutured to a window in the dura. Both incisions were then closed as usual.

The baby stood both operations better than might have been expected. Fontanelles were less tense

and nourishment was taken as usual. Healing was prompt with but slight leakage of spinal fluid for five days. Sutures were removed on the ninth day when the general condition was thought to be good. During the next three days, dehydration, inanition and apathy progressed in spite of treatment to death on the twelfth postoperative day, the exact cause being obscure. Autopsy was refused.

As previously stated, the exact value of this operation has not at present been accurately determined. This case is reported in the hope that others may be stimulated to attempt to relieve an otherwise hopeless condition. The sacrifice of a healthy kidney is justified in the inevitable fatal outcome. Similarly, the objection that urinary tract infection might lead to meningitis at some future time is also to be ignored.

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**Chronic Headache**—The outlook for relief from chronic headache is more hopeful than in former years. Perfection of technic in the field of neurosurgery has done much to accomplish this. Trichlorethylene inhalations will usually give some relief in painful tic and occasionally where there is overlapping of the trigeminal with some of the other types of neuralgia of the head. The role played by disturbances of the eye should always be carefully evaluated early in the case. In pituitary headaches, hypodermic injections of the appropriate extracts may be the chief source of relief. The posterior extracts are probably better for this purpose than the anterior extracts in most cases. In small, weak individuals, with low blood pressure, one injection per week of pitressin may suffice.

For chronic headaches associated with chronic constipation or colon distress, colon bacillus vaccine therapy, particularly when used in conjunction with sodium ricinoleate by mouth, has given very commendable results in some hands.

A combination of allergic and endocrine migraine is quite common and combined therapy in these cases is necessary for relief. Chondroitin sulphuric acid in six-tenths of a gram capsules by mouth, three to six grams per day, has helped some cases of idiopathic headache when given over a period of from two to twelve months. Comparatively good results have also been obtained from intravenous injections of one gram doses of sodium thiosulphate. A point to be emphasized is that, while prompt temporary relief from migraine may usually be obtained from ergotamine tartrate (gynergen), its use should not take the place of efforts to find and remove the cause or causes of the condition.

Uremic headaches can often be relieved by lumbar puncture during the time necessary for the basic nephritic condition to be brought under control by diet, medicines, and elimination of foci of infection.

Such a simple measure as the use of caffein by mouth as well as subcutaneously or intravenously should not be overlooked. Experimentation has shown that it will produce enough drop in intracranial pressure to give some relief not only to the more serious headaches associated with organic brain disease, but also to the less serious but more common types. This is a circumstance which explains the relief given to the "morning after" variety by a cup or two of hot strong coffee. Opium derivatives greatly increase intracranial pressure and hence should not be used following head injuries. Amyl nitrite increases this pressure more than any other drug. Therefore, its use as a vasodilator in hypertension may possibly be more hazardous than helpful. Intravenous hypertonic injections of glucose, sucrose, or sodium chloride change the osmotic dynamics of the body fluids, dehydrate the brain, reduce intracranial pressure and the headache that comes with and from it.

Acetylcholine preparations are often beneficial to hypertensive headaches as are combinations of theobromine and phenobarbital. The most obstinate cases of hypertensive headache have been relieved by splanchnic operations.—*Draper, Colorado Medicine, August* 1937.

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**Epilepsy**—It may be said that epilepsy is a symptom complex that may be divided into two general types—the petit mal attack and the grand mal attack. The grand mal attack is characterized by a convulsion and usually, though not invariably, by a loss of consciousness. The petit mal attack is a seizure which does not progress into the stage of convulsion. The petit mal attack is usually a temporary, dazed state during which the patient experiences pseudosensations affecting any of the organs of sense. These sensations are occasionally of very short duration and may pass unnoticed by the patient's associates. Petit mal attacks are very apt, eventually, to give way to grand mal attacks.—*Gilbert, Texas State J. Med., Aug.* '37.

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

September 1937

## THE BLACK WIDOW SPIDER

Since the black widow spider is common in Alabama, and persons are bitten by it at times, considerable public interest has been excited. How dangerous is the bite of this spider? How should the patient be treated? These are the questions most frequently asked.

Contrary to general opinion the bite of the black widow spider is neither extremely dangerous nor fatal. In spite of the fact that the symptoms may be alarming, most of the cases recover within a relatively short time. It can be said that the general outlook for recovery is good, although a death rate of about 4.5 per cent—mostly among children—has been claimed by certain investigators. Undoubtedly some of these deaths have been due to unwise treatment by non-medical friends. As in snake bite, alcohol by common belief is supposed to be a sovereign remedy. It is the worst possible medicine in both spider and snake bite.

According to Blair,[1] who allowed himself to be bitten by a female black widow spider, the clinical reaction can be divided into three stages: The first, which lasts about one half hour, is that of lymphatic absorption. The second, which he calls vascular dissemination, is usually severe and lasts several hours. In this stage marked muscular pains, weak pulse and lowered blood pressure are noticeable. The third is that of elimination in which the patient returns gradually to normal.

Frawley and Ginsburg[2] point out: "It is essential that a correct diagnosis be made; otherwise the patient might be subjected to a surgical operation for an acute condition of the abdomen such as ruptured gastric ulcer. If one is on guard it is always possible to differentiate between the abdominal symptoms in spider bite and those of an acute condition of the abdomen. There is generally a history of having been bitten by a black spider and there is no previous ulcer history. The patient is not in shock and the temperature and pulse are normal. The blood examination shows a slight elevation of the white count, with little increase in polymorphonuclear leukocytes."

In reference to treatment Blair[1] believes that, in the second stage, measures should be directed towards the restoration of capillary tone and blood volume. For that reason he maintains cardiac stimulants and large doses of alcohol and morphine are contraindicated. Hot baths may relieve pain. Since an acute nephritis may develop during the third stage, rest should be given to the kidneys.

The treatment for black widow spider bite as carried out at the Fresno County General Hospital is, according to Frawley and Ginsburg,[2] as follows:

"1. The patient is immediately put to bed and iodine is applied to the site of the bite.

2. A soap suds enema is administered, and fluids are given freely by mouth.

3. Morphine sulphate is given hypodermically to control pain and sodium amytal to insure rest.

4. Magnesium sulphate, a 20 cc. ampule of 10% solution, is given intravenously, to be repeated as required to overcome the hypertension and the spasticity of the muscles."

1. Blair, A. W.: Spider Poisoning, Arch. Int. Med. 54: 83 (December) 1934.

2. Frawley, J. M., and Ginsburg, H. M.: The Diagnosis and Treatment of Black Spider Bite, J. A. M. A. 104: 1790-1792 (May 18) 1935.

## REFRESHER COURSES IN VENEREAL DISEASE CONTROL

For sometime the State Department of Health has felt that greater interest in the control and treatment of venereal diseases might be displayed by the physicians throughout Alabama if short refresher courses in these diseases could be given. Since refresher courses in other lines of medicine have paid such valuable dividends to the people of our state, it was decided to provide similar short intensive study periods in the venereal diseases.

Through social security funds, the State Department of Health has been able to finance refresher courses at the United States Public Health Service Venereal Disease Clinic at Hot Springs, Arkansas. Five physicians have already availed themselves of this short period of intensive study and observation and five more will attend this clinic beginning September 1st.

Physicians are selected by their respective county medical societies, but only one doctor is selected from each county. The period of study is one month and the stipend is $200.00 for married men and $150.00 for single men, plus transportation. The transportation paid is the equivalent of a round trip fare, without Pullman, to Hot Springs and return.

Inasmuch as the treatment of venereal diseases usually appeals to younger men it is suggested that the physician selected by the county medical society be preferably from among the younger members. It is to be hoped, of course, that the doctors attending these study courses will avail themselves of every opportunity to acquire the modern conception of treatment and control of the venereal diseases. As a result of this clinical exposure, it is anticipated that the physician will, on his return to his local medical society, be of assistance in organizing and maintaining adequate, modern treatment and control services in these diseases. Such assistance may be accomplished by reporting to his society on his clinical experience at Hot Springs and by the presentation of papers from time to time on venereal diseases.

The clinic at Hot Springs, Arkansas, offers excellent possibilities for studying the problems connected with venereal diseases. One physician, after returning from the clinic writes, "The clinic at Hot Springs is excellent and I enjoyed the work very much. During July there were six hundred and fifty-five new admissions to the clinic. It is my opinion that I know more about venereal diseases than I ever knew and especially syphilis. I want to thank you and all concerned for the privilege of attending the clinic."

It is the expectation of the State Department of Health, within its limited financial resources, to assist an additional number of physicians in availing themselves of this one month refresher course.

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## MEDICAL CARE AND THE FEDERAL RESETTLEMENT ADMINISTRATION*

The Resettlement Administration was formed April 30, 1935 and represents a fusion into one organization of several agencies dealing with rural rehabilitation, land use and resettlement problems. The activities of this Administration fall into several main phases, the final objective in every and all instances being rehabilitation—rehabilitation of low-income and destitute farm families and rehabilitation of soil and land conditions. For this purpose small loans, ranging from $50 to $600 and bearing an interest rate of 5 per cent, are made and are secured by crop liens and mortgages on livestock. If such a system of rehabilitation were not in existence, the money now used for loans and grants would likely be applied as doles and without providing any semblance of a permanent remedy. Under the present approach being made by the Resettlement Administration, one may reasonably expect a goodly portion of these families—the more thrifty and intelligent ones, at least—to stage a comeback and thus become assets rather than liabilities to their respective communities. In order to bring about such desired results and to enable these groups to repay their loans, they must be kept healthy and physically fit. And here there enter into the pic-

*Since this editorial was prepared, the Resettlement Administration (R. A.) has become the Farm Security Administration (F. S. A.) whose activities will be more definitely concentrated on the farm tenant group, and with the major objective of human rehabilitation. The suggestions therein made for cooperative effort on the part of the medical profession should still be applicable and to an even greater degree.

ture the important questions of medical care and proper environmental sanitation —a safe water supply and safe methods of disposal of human excreta. The latter of these problems is finding a satisfactory solution through cooperative efforts on the part of the federal authorities in charge and the state and local health departments. In the past, some rather sad and costly experiences have been had through failure to grasp the need for such cooperation, and, also, through failure to evaluate the importance of sanitation and salubrious location. The former—some sort of adequate medical care—is quite or possibly more important than the latter. This fact, while not fully appreciated by federal agencies in their earlier efforts for dispensing relief, is coming to be more and more recognised; and more particularly by the Resettlement Administration whose activities are likely to continue yet sometime. To aid this Administration in formulating satisfactory plans for caring for this important phase of the program, one of the senior surgeons of the United States Public Health Service is now serving as medical director to the Resettlement Administration, which also has one or more physicians in the field working with state and county medical societies in the various states in an effort to have this service rendered through the practising profession and in an ethical manner, satisfactory to all concerned. Through this approach, several states have already formulated suitable and workable plans. In Alabama, whose population is so largely rural, many of these projects are now functioning or in the offing. The federal representatives of such projects in Alabama know of the intimate relationship existing between the organised medical profession and the official health department, and, in many instances, have come to the State Health Officer for advice as to how this problem might best be solved. Invariably the same advice is given in each case; which is to lay the whole problem before the county medical society, where such a project is to be operated, and to seriously and earnestly invoke the aid of the practising physicians in finding a reasonable and satisfactory solution. Physicians can readily see that these groups have been culled largely from those who formerly constituted their "charity load" and that some plan, offering a fair degree of financial security for services rendered, is much to be desired. It has been gratifying to learn that, in most instances, this approach has proven successful, as well as being of mutual benefit to this low-income group and to the practising physicians.

From many conferences and contacts with the medical and other officials of the Resettlement Administration, the State Health Officer has received ample assurance of the Administration's desire to procure decent medical care for these groups and with no thought of exploiting the profession; on the contrary, all evidence points to a real desire to see that the medical profession is given every consideration and that in any scheme adopted a reasonable compensation for the medical service rendered will be provided for. It would appear, therefore, that local physicians, at such points where these projects are established, should welcome the opportunity to work out suitable and ethical plans for financing a medical service which they themselves will be called upon to render. Physicians should remember that unless some such plan, mutually understood and agreed upon, becomes operative, one of two things must happen: either the members of this substandard group of society will be deprived of medical service; or else, the physician, already carrying a weighty load of charity, will find such load still further increased.

One need have no fears that this problem, approached in the proper cooperative spirit, will not find a satisfactory solution, and that the medical profession will contribute its full share towards such solution.

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**Acute Intestinal Obstruction**—Inspection of the abdomen may present any appearance from a slight abnormal fullness to the peristaltic patterns seen late in the obstruction. Naturally, an abdomen covered with a large layer of fat hides such signs to a large extent. By gentle palpation one can sometimes feel these patterns in fat patients when they are not seen by the eye. This "palpation" means lightly dragging the balls of the fingers across the abdomen. Occasionally, by darkening the room, one can demonstrate intestinal patterns by the use of a flashlight. The flashlight is placed so as to throw its rays almost parallel to the anterior abdominal wall.—*Trout, Virginia Medical M., Aug.* '37.

# THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

## NEW STRIDES AND NEW GOALS FOR ALABAMA'S HEALTH DEPARTMENT

By
J. N. BAKER, M. D.
State Health Officer

Within the next few months there is every reason to believe every county in Alabama will have its own full-time health department. When that time comes, although there are two small states, Delaware with 3 counties and Maryland with 25, enjoying full-time health work, it is believed that this state will be the first to be completely organised on a full-time health basis and with each county substantially participating in a financial way and preserving the principles of local autonomy and responsibility, so necessary for the successful prosecution of local health work.

Already 58 of the state's 67 counties have these local health units for the safeguarding of the physical well-being of their people. Even if the onward march of county organisation should suddenly stop and no more of these local units should be organised, more than 92 per cent of Alabama's nearly three million people would continue to enjoy the benefits of such health protection, provided by health workers making a special study of the health problems of the particular communities which they serve and carrying on their activities in close cooperation with the State Department of Health. However, Choctaw, Clarke, Clay, Geneva, Greene and Hale, also, have set aside monies for units and but await the selection of personnel. With the exceptions above stated, Alabama, as a consequence, ranks first in the United States on the basis of the percentage of her residents enjoying such protection.

This all-but-completed task of state-wide county organisation made a halting start in 1914, when Walker County became the first in Alabama, and the second in the United States, to establish its own health department. It was joined in 1915 by Tuscaloosa County, and these two were joined in 1917 by Jefferson, Madison and Talladega. Under the impetus of a growing conviction that county health departments were serving a useful and indeed a valuable purpose, the organisation of other counties followed in rapid order. Calhoun, Lauderdale and Sumter were added in 1918, Colbert, Etowah, Mobile and Montgomery in 1919, Morgan and Pike in 1921, Barbour, Covington and Houston in 1922, Escambia, Franklin and Limestone in 1923, Marengo and Marshall in 1924, Lawrence and Lee in 1925, Chambers and Tallapoosa in 1926, Cullman, Dale, Elmore and Monroe in 1927, Blount, Bullock, Cherokee, Cleburne, Conecuh, Crenshaw, Jackson, Lamar, Lowndes, Macon, Pickens, Washington and Wilcox in 1928, Shelby and Winston in 1929, Perry in 1930, and Marion in 1931. Then came, in 1932 and 1933, what might very properly be called "the dark age" of county organisation in Alabama, when the depression was playing havoc with public revenue, appropriations for health work were slashed, and the progress of county organisation was abruptly halted to await a clearing of the financial skies.

With the return of more favorable conditions in the business world and the resulting improvement of the state's financial status, this progress was resumed. In 1934 Autauga and Russell were added to the list of organised counties, although the continuing financial stringency later brought about the discontinuance of the health unit in the former county, which, however, is expected to return to an organised status in the near future. In 1935 the ranks of unorganised counties were further reduced by the organisation of health departments in Baldwin, Chilton, Coosa, DeKalb, and Randolph. Last year such a unit was established in Henry County, and already this year organisation has been effectuated in Butler and Fayette. The three counties that remain to appropriate before the state's score will be complete are Autauga, Bibb and St. Clair.

Unfortunately, Autauga was not the only county that yielded to the pressure of hard times to the extent of dispensing with its health unit. However, it is a tribute to the work of these units and to the place which

they have won in the esteem of the people they were established to serve that plans were made for the reestablishment of the majority of them as soon as the financial storm appeared to have spent its force and a return to normal conditions seemed near.

As already indicated, the funds made available for the work of the State Department of Health have shown graphically the effects of the depression. Receiving between 1915 and 1918, inclusive, only $25,000 a year from the State Legislature for the support of its necessarily limited activities, the department was able to enlarge its field of usefulness somewhat as a result of an increase in its appropriation from the amount just mentioned to $38,860 in 1919. In 1920 this was boosted substantially to $90,000, in 1921 to $125,000, in 1922 and 1923 to $150,000 annually, and in 1924 to $207,000. There was a slight decrease in 1925 and 1926 to $205,000 a year, but in 1927 the appropriation again took an upward turn, albeit an extremely small one, by exceeding the former high figure of $207,000 by $87. From this point to 1931, the legislature, appreciating the importance of complete county organisation throughout the state, appropriated liberally and sufficiently, on a graduated scale of increase, to bring about this desired end; the amount in 1931 reaching $685,549. However, complete organisation, largely because of local financial conditions existing in certain counties, could not be attained and consequently the full appropriation was not expended. The 1931 appropriation was more than 27 times as large as the annual appropriations in the years 1915 to 1918, inclusive, and was more than three times as large as the amount appropriated for the work of the State Department of Health in 1927.

There was a slight increase in the health department appropriation for 1932, the sum appropriated for that year being $686,383, as compared with $685,549 in 1931. In 1933 and 1934 the department went through a lean period indeed, its appropriations being cut to $235,675 in the first of these years and to $302,514 in 1934. There was an increase to $406,204 in 1935, but, as a result of the necessity for prorating the limited state funds, the amount made available in 1936 was reduced drastically to $266,966. The sum of $430,000 was appropriated for the work of the State Department of Health for the fiscal year, ending next September 30, but again, because of the necessity for prorating, the department is expected to receive only $349,812.53.

Fortunately, the drastic reduction in state funds did not have as serious an effect upon the activities of the State Department of Health as might have been expected, thanks to the generous financial aid of the Federal Government, through the United States Public Health Service, and philanthropic groups like the Rockefeller Foundation, the Rosenwald Fund, etc., which undertook to aid in the financing of health work which had formerly been carried on by means of the regular appropriations to the State Department of Health but which would, of necessity, have been dropped entirely without such outside aid when the time of economic stringency came. These groups' willingness to devote their own funds to continuing functions begun by the State Health Department is an excellent indication of the importance of this work in the eyes of these agencies.

Ever since the beginning of the present administration, the Governor has expressed his continued interest in the work of the State Department of Health and of local health departments and has endeavored to insure their receiving as generous treatment as possible at the hands of the State Legislature and the budget makers. With a considerable increase of funds made possible by the beverage control act and the two per cent sales tax, there is every indication that needed revenue will soon be made available.

Indeed, such funds have already been made available in part. A certain percentage of the returns from the sales tax are definitely earmarked for health work in local communities, and the maintenance subsidy intended to make county sanatorium facilities available to communities that otherwise would be unable to provide them, inoperative since the passage of the Patterson Act in 1931 because of a lack of such funds, is ready for payment to such counties or groups of counties as may wish to avail themselves of this aid.

With this assurance of increased financial support, a well-thought-out program of expansion on the part of the State Department of Health is already under way. Early this year it reestablished the Division of

Oral Hygiene, which was one of the activities that, while important in the state's public health program, was considered less essential than some others and therefore was dropped when greatly curtailed funds made drastic retrenchment imperative. This division, formerly a part of the Bureau of Preventable Diseases, is now a function of the Bureau of Hygiene and Nursing. It is in charge of Dr. Reuben T. Crawford, formerly of Birmingham. More recently, Dr. W. F. Queen has been added to the staff as director of the Division of Industrial Hygiene, beginning a form of public health activity never before sponsored by the Alabama State Department of Health. Another new activity which has been made possible by increased revenues is the Division of Public Health Education, which was started last March 1.

Plans for further expansion of the work of the State Department of Health naturally will cover as broad a field as the available funds will permit, in the light of the needs of a state-wide program of this kind. However, expansion activities of the immediate future will largely be concentrated upon (1) completion of county organisation, (2) tuberculosis control, (3) venereal disease control, and (4) rabies control.

Brief reference has already been made to the Patterson Act and the fact that at last state funds are available to put into effect the subsidy it provided to aid in the maintenance of county or multi-county sanatoria in those districts where it is desired to establish these institutions of healing for the benefit of tuberculosis sufferers among their residents. Those sanatoria qualifying for such aid will receive a maintenance subsidy up to 75 cents per patient per day to match maintenance funds provided locally. The impending opening of the long-unused Scottsboro sanatorium for the treatment of tuberculosis patients from Marshall, Jackson and DeKalb Counties was made possible by this subsidy. It is expected to receive its first group of patients within the next few weeks. Plans are now under way for the opening of similar institutions on the same basis in other parts of the state.

Probably no expanded activity made possible by the increased state revenue will mean more to the people of Alabama than the intensified campaign against the venereal diseases, especially syphilis. Directly, this disease was responsible for 488 deaths in the state last year. Indirectly, it was responsible for many times this number, causing it to take a high place among the state's major killers. In view of its seriousness as a factor in the health problem of Alabama, the State Department of Health has arranged to supply without any charge whatsoever to any physician in the state the drugs needed to cure any and all cases for which such drugs are desired.

Although rabies does not take high rank as a cause of death in Alabama, where only four deaths were reported as being due to it last year, it nevertheless is a serious problem and, as such, is receiving much attention from the health department's experts. In cooperation with the Rockefeller Foundation, they are conducting a special rabies laboratory for the study of this disease on state property near Kilby Prison, and the results of this study are expected to add materially to the general knowledge of rabies.

The work of this laboratory is of course in addition to that of the regular laboratories maintained by the State Department of Health, which examined 1,758 animal heads in 1936, as compared with only 1,054 in 1930, and distributed 4,036 human treatments for rabies last year, or more than twice as many as were distributed six years before, notwithstanding reduced appropriations for health work. It will be of interest to the practising profession to know that the fee of $5.00 allowed the physician by the State for the administration of the rabies treatments to the indigent case has been restored.

The health department was also instrumental in bringing into being the anti-rabies measure passed by the legislature a few months ago. This law, while not exactly what was hoped for, is believed to be a distinct forward step in the direction of preventing rabies through the outlawing of the stray dog. According to the terms of this measure, every dog that is allowed to run at large must wear a tag indicating that it has been vaccinated against rabies.

Health workers, whether laboring as individuals or as members of a state or local health department, are under the handicap of not being in a position to point to immediate dollars-and-cents results of their work.

A business enterprise can produce a balance sheet and show profits, but a laboratory expert or earnest laborer in the field of tuberculosis control shows another kind of profit. These profits, it is true, bring about greater financial profits for those who do business on a dollars-and-cents basis, but the most valuable returns from these workers' labors are in a form not quickly translatable into the coin of the realm.

Who, for instance, is able to place a dollars-and-cents valuation upon a healthy baby, or a mother saved by medical science from premature death in childbirth, or the saving of human life that results from a tuberculosis death rate of only 64.8 per 100,000 population last year, as compared with 127.0 per 100,000 in 1917? Who can say exactly how much it is worth to the state of Alabama to lose less than half as many children from diphtheria last year as were lost in 1920? This is progress of a most vital kind, even though it is impossible to say exactly how much it has meant to the state and to her people in a strictly financial sense.

As additional funds become available, greater expansion of the activities of the State Department of Health is contemplated, with resultingly larger returns in human and health values, and these, as in the past, will be reflected in greater state and individual wealth. The time has passed when public health measures were of a medical nature alone, or even predominantly. The health of a state, like that of an individual, plays an important, and indeed a vital, part in that state's industrial progress. A sickly, disease-cursed state is no more likely to attract customers and employers than a sickly individual. Industries, with their great wealth in the form of payrolls and demand for raw materials, go to those sections of the country where their workers are likely to enjoy the best health conditions and are therefore less likely to lose long periods of time from their tasks because of sickness. It is an indirect tribute to the success of the Alabama State Department of Health and its affiliated county health departments that more and more large industries are selecting this state as a field for expansion. With the assurance of better health conditions in the future, there is every reason to believe that Alabama will attract many other large industries from time to time.

These contributions to the health and the upbuilding of our state have been made possible through the vision and sustained interest of an organised medical profession to which, since 1875, the direction and control of all health activities within the state have been entrusted.

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# *Committee Contributions*

## MATERNAL AND INFANT WELFARE

### When Do We Learn?

Contributed By
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Birmingham, Ala.

This is an age old question that has been variously answered or not answered at all. Not answered at all seems to be the fitting opprobrium when analyzing maternal deaths caused by infection.

Child-bed fever or septicemia, or known by any other name, is one of the really preventable complications in obstetrics—more so, in fact, than either hemorrhage or toxemia. It is a complication that is usually introduced from without and such a source of transmission rests squarely upon the shoulders of the medical or nurse attendant. Year in and year out, the record of deaths of mothers from infection continues so appallingly high that one must pause to ask "when do we learn?" It is a paradox that this question remains to be answered, when considering maternal deaths from infection, as there is no alibi for the doctor, inasmuch as there are countless means through which he can be adequately and intelligently informed upon this entire subject. And yet, "when do we learn?" pursues a relentless cycle as the toll of deaths, from infection, are constantly checked.

Study, experience and analytical comparison (statistics) should serve as a compass to the doctor maneuvering in the obstetric field. Study insures the possession of fundamental knowledge. Experience insures the development of judgment. Analytical comparison insures self criticism. These mental processes are attainable by everyone that sincerely and thoughtfully pursues his avocation. They constitute the outpost defense against bacterial action in puerperal infection and so long as they remain in absentia, the record of maternal deaths, from

this source, will be a blot upon the profession. If a doctor disciplines himself in these ways he becomes fortified with knowledge and can better discharge service to the patient and can better instruct the layman upon the vital topic of infection in pregnancy and childbirth.

Perhaps members of the profession materially contribute to the delinquencies of doctors that raise the maternal death rate from infection. Vocal criticism is withheld when the fact is established that an obstetric attendant conducts a labor case without observing simplest rules of surgical antisepsis; that frequent and ill performed vaginal examinations are made; that superficial or no preparation of the patient is observed and that other equally important technic is abridged. Criticism and denunciation should pound against the ear drums of such obstetric operators with the same degree of intensity, with the same degree of impartiality, with the same degree of lethal results as is the growth of uselessly introduced organisms in the parturient woman.

Irrespective of counter arguments, puerperal sepsis *Can Be* prevented. Those who are ignorant of this truth and those who wilfully resist this truth and those who elect to thumb their nose at this truth sow the wind while mothers reap the whirlwind. They keep unanswered the question, "when do we learn?"

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

James G. McAlpine, Ph.D., Director

### IMMUNITY IN MALARIA*

#### IV. IMMUNITY AS OBSERVED IN MALARIA

Like so many of the other phases of malaria, the question of immunity is a controversial subject and relatively little has been known concerning it until comparatively recent times. Many widely divergent interpretations have been placed on the manifestations and the mechanism of immunity in this disease. As stated in a previous article in this series, absolute natural immunity appears to be rare, indications are that relative immunity may be acquired. Practically universal relative susceptibility to malaria exists at birth, and the individual continues susceptible except as he acquires an infection. Consequently immunity is not the correct word to describe the exact condition existing and is used here in the same sense as explained before.

Natural immunity to malaria is rare. Negroes possess, as a race, a certain natural degree of immunity, or tolerance, to *P. vivax* varying with the strain, but possess no natural tolerance for *P. falciparum* or for *P. malariae*. Individual natural immunity is noted occasionally in persons who grew up in malarial areas, who have never had malaria, and who are refractory to experimental inoculation. Acquired immunity occurs in infected individuals in whom paroxysm promotes increased resistance to further inoculation of homologous strains. Some individuals acquire resistance to heterologous strains from such an infection.

James[1] states: "Immunity to malaria when it is present is almost always a partial immunity acquired by frequent infection and reinfection repeated continuously during a number of years." Thomson[2] points out the danger of the acquisition of such a relative or tolerant immunity in persons from non-malarious areas upon entering malarious areas. He draws particular attention to the frequency with which black water fever develops in such persons and the rarity of such an occurrence in the native residents of the area. From this, Thomson suggests that some form of racial or hereditary immunity may be engendered by the continued malarial saturation in families or tribes residing for generations in endemic areas. Malaria in endemic areas is primarily a disease of children. In such areas the children harbor gametocytes and have clinical malaria. The adults harbor few gametocytes, possess a degree of immunity and show little, if any, clinical evidence of malaria. However, other diseases

*Third in a series on the subject. The first appeared in the July number.

1. James, S. P.: Malaria at Home and Abroad. London: John Bale, Sons and Danielson, Ltd., 1920.
2. Thomson, J. Gordon: Immunity in Malaria, Tran. Roy. Soc. Trop. Med. and Hyg., 26: 284-503, 1933.

are fairly common in such an adult population. According to Thomson, acquired immunity in natives results from their being bitten constantly by infected mosquitoes over a period of 12 to 15 years, and feels that the price paid in infant and child mortality is too high for this freedom from clinical manifestation.

Kligler and Mer,[3] working with a selected group of children in two villages in Palestine, concluded that children below the age of 4 years have little or no capacity for developing immunity against a malarial infection. They found, associated with this failure to develop immunity, a poorer response to treatment, a greater tendency to relapse, and a higher reinfection rate after cessation of treatment in this age group. They also found that the intensity of infection begins to decrease after the age of 4 years, but that the incidence of infection begins to decrease only after the age of 6 years. From this they conclude that children below the age of 6 years are less capable of developing resistance, or immunity, to malarial parasites than are those above that age. In this connection Ashford[4] states: "The native inhabitants of these hyperendemic malarial regions acquire malaria in infancy in practically 100 per cent although in adolescence the parasite rate may fall below 40 per cent and in maturity even lower. It appears that, because of this racial immunity, malaria has a relatively low mortality among the infant population and an exceedingly low mortality and relatively low morbidity among the native adults. Racial or inherited immunity to malaria while relative definitely exists as a result of generations of exposure of the indigenous population. This form of mass immunity is specific for the several species as it is in fact in individual immunity, so that the natives of a malarial region are relatively least immune to the species of malaria last introduced into their native land." According to Craig,[5] on the other hand, long residence and repeated infection with the plasmodia will bring about a relative immunity to malaria, as in such areas a blood examination always shows a large amount of latent infection. He asserts: "Usually, the immunity in these people is not an immunity to the infection of the blood by the plasmodia but to the effects of the toxins produced by the development of the plasmodia in the blood. Infection is not prevented, but the symptoms of infection."

### V. THE MECHANISM OF IMMUNITY IN MALARIA

The mechanism which brings about the state of immunity in malaria is, according to Craig,[5] due to the presence of antiplasmodial and antitoxic substances in the blood serum and to phagocytosis and possibly phagolytic products. James[6] believes that it is due to some "unusual chemical or other condition, as yet unknown, in the blood or tissues of certain persons." Recent observations on complement fixation in malaria show that there are demonstrable antibodies produced in the blood of certain persons in response to infections with malaria plasmodia. That the ordinary defense mechanism of the body plays an important part in removing and destroying malaria parasites may be assumed from the following facts. Mathematically it is possible for one sporozoite to produce 250 million parasites in 14 days per cubic millimeter of blood. As 14 days is about the average incubation time of malaria and as only from 3 to 900 parasites per cubic millimeter of blood are necessary to produce symptoms, it is evident that enormous numbers of parasites are either destroyed or are prevented from multiplying by the defense mechanism of the host. This is especially striking since it may be safely assumed that many times one sporozoite gains entry to the host by the bite of an infected mosquito. Experimentally it has been shown that two-thirds of the parasites in bird malaria and seven-ninths of the parasites in monkey malaria are destroyed during the incubation period. There is active proliferation of the endothelial cells in the liver and in the spleen; these cells actively destroy parasites. There is also phagocytosis of parasites in the blood

3. Kligler and Mer: The Development of Immunity Against Malaria in Children Under Ten Years of Age, Trans. Roy. Soc. Trop. Med. and Hyg., 27: 269-276, (November) 1933.

4. Ashford, M.: The Nature of Immunity to Malaria in Its Relationship to Antimalarial Therapy, Am. J. Trop. Med., 16: 665-678 (November) 1936.

5. Craig, Charles F.: Malaria, Arch. Path. 6: 645-723 (October) 1928.

6. James, S. P.: Trans. Roy. Soc. Trop. Med. & Hyg., 20: 153, 1926.

by macrophages and polymorphonuclear leucocytes.

Following Ashford[4] in his conclusions on the nature of immunity in malaria, it appears that immunity in malaria is not wholly derived from the development of a plasmodicidal body since it has been shown that parasites may continue to live and multiply in the host without clinical manifestation. From this evidence, gained through the study of adults in malarious areas, it is evident that a part of the immunity to malaria is through the development of antibodies which counteract the toxins produced in the body by the parasites. On the other hand, the observed fact, that reinfection of a recovered patient with the same strain and species to which immunity has been acquired is not productive of a new infection, leads us to believe that the patient has developed a plasmodicidal antibody. Both these elements, plasmodicidal and antitoxic, are at least two parts of the immunity developed to malaria. Possibly the failure to recognize the dual nature of immunity to malaria is the cause of the conflicting views on this phase of the whole problem.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### TUBERCULOSIS STILL A PROBLEM IN ALABAMA

Twenty-seven years ago tuberculosis led the list of the causes of death in the United States. Two years later it had fallen to second place. Seventeen years ago it skidded downward to third place. Twelve years back tuberculosis just barely held fourth place, and ten years ago it continued its downward flight, having by that time landed in fifth place in importance as the cause of deaths in the United States. Now one year later it sideslipped to sixth place and seven years ago it tremblingly, and with uncertainty, landed in seventh place.

Today tuberculosis is back in sixth place again in the order of importance among the causes of death, which frequency holds now in the United States as also it does in the commonwealth of Alabama.

The greatest, the most outstanding friends of that little old slaughtering organism, the tubercle bacillus, are those vociferous optimists who direct attention to the above figures to show how the death rate of this killer has been reduced. In other words, they are congratulating themselves that this avoidable, preventable carnage is not worse than it already is.

It is high time these false security vendors are jarred loose from their insecure scaffolding and apprized of certain unvarnished truths. Do they appreciate fully that the "white death" murdered one thousand, eight hundred forty-seven (1847) of Alabama's citizenry last year? Will they face the fact that tuberculosis leads the list of deaths of people in the prime of their existence and usefulness between the ages of 15 and 40 years? Can these misguided optimists rise to heights of perception that will permit them to realize that those people in their fifties and above who are ambulatory cases of chronic pulmonary tuberculosis are persistent and ever present spreaders and carriers of this disease? We encounter them time and again, and x-ray examination usually shows one lung somewhat contracted down in size, with much fibrotic or scar tissue in evidence. The disease more frequently involves the upper portion of one or the other lung in these old chronic cases. Areas suggestive of small cavities are often visible and the trachea is definitely pulled toward the old diseased side by the scar tissue.

These chronic ambulatory carriers of infection are often not the text-book picture of far-advanced tuberculosis, but instead are quite frequently fairly healthy appearing individuals who cough and spit around rather promiscuously; and, seemingly, are living amiably with the tubercle bacillus. Consequently it is not unreasonable to believe that some of these "Typhoid Marys" of the tuberculosis problem may eventually die of some disease other than tuberculosis.

At the present time Alabama lacks the much needed facilities to not only care for and remove this legion of death spreaders from contact with the still healthy younger generation, but also lacks facilities to properly treat and cure the earlier forms of the disease which respond so dramatically to collapse therapy.

What a heritage, what a contribution these old chronic tuberculosis spitters and coughers hand down to their children and

grandchildren; something more lasting, more tangible than wealth; in fact a future of illness, worry, and trouble that will almost certainly shorten their lives.

Just now the Department of Health of the State of Alabama is coming into ways and means to make not only a fine gesture, but also real financial contribution to those communities ready and willing to shoulder some of the responsibility for the care and cure of their tuberculosis problem.

### SYPHILIS CONTROL

Recently a patient was seen with a 24-day old genital chancre. On questioning the individual it was learned that he had visited a physician two days after the chancre developed. The physician had said the lesion looked like syphilis but that he would have to wait 21 days for the blood to become positive before a definite diagnosis could be made. Of course, the blood was positive on the 24th day but the patient had lost valuable treatment time in the interim. Not only had his chances of having his disease eradicated in the minimum time been reduced but he had also been a definite public health menace for a period of three weeks.

A diagnosis of syphilis could very likely have been made on the two-day old chancre by examination of a darkfield specimen. The method of taking these specimens was described in the April issue of the Journal of this Association (J. M. A. Ala. 6:342, April 1937) and the darkfield outfit was described in the May issue (J. M. A. Ala. 6:365, May 1937). The darkfield specimens are examined in the Montgomery and Birmingham laboratories. The taking of specimens is simple, requires little time and offers the patient the maximum of help for his disease. It reduces his infectiousness rapidly by the introduction of early treatment.

The finding of spirocheta pallida in the serum from a suspicious sore is absolute proof of infection with syphilis. In other words, the darkfield is a specific diagnostic procedure for syphilis. The Wassermann, on the other hand, is not necessarily specific. It is a presumptive test. False positives do occur occasionally. Hence a Wassermann alone in a single test does not justify a diagnosis of syphilis. A repeated test for four successive times with 3 out of four tests being positive, or one positive test with collateral signs and symptoms, is sufficient evidence to justify the diagnosis.

Culturing the blood from a typhoid fever patient and finding *E. typhi* is proof positive evidence of typhoid fever. This procedure is comparable to the darkfield examination in syphilis. Similarly, the Widal test is like the Wassermann in that it is merely presumptive evidence and does not establish a diagnosis unless other signs and symptoms are present.

Every patient with a suspicious sore, whether it be genital or extragenital, is deserving of a darkfield examination of the serum from that sore. This is, indeed, a demand requirement if syphilis is ever to be controlled. To neglect this method of early diagnosis is sheer negligence. To wait until the blood becomes positive may be the weak link in the chain of syphilis control since it deprives 18% of patients the chance of having their syphilis eradicated in the minimum of time.

W. H. Y. S.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### THE SERVICES OF THE COUNTY HEALTH NURSE

The following is a reproduction of a typical conversation that may occur in the office of any physician who is practicing medicine in a county where there is a county health unit.

"Dr. Crane, I am Catherine Aiken, the county health nurse from the local health unit. I just came by to tell you how happy we are to have you come into this county to practice."

"This is nice of you and I am sure I shall enjoy working here."

"I have been to your office several times during the past month but you were always out. The people must be glad to have you practicing in our county."

"They have been very nice to me and helpful also."

"Since you have been practicing where there was no health department I thought perhaps you would like to know in what way I could assist you, for you know the health department depends on the physic-

ians to a great extent and we are always eager to return favors."

"I surely would and it is certainly nice to be in a place where there is a health department. A number of my former patients spoke in complimentary terms of the public health nurse."

"Our work includes the following programs: control of syphilis and gonorrhea through home visiting and clinic service; tuberculosis control through home visiting and chest clinics; communicable disease control through home visiting, immunization and isolation; maternal and infant hygiene through prenatal, postnatal, and infant hygiene visits and clinics; school hygiene; preschool hygiene; midwifery through registration and supervision of midwives; and vital statistics. Since the maternal and infant mortality rate is high in this state, we are particularly interested in this phase of the work. This year I am attempting to supervise one hundred maternity cases; these include white and colored, and persons who will use the services of both physicians and midwives. All expectant mothers who have not made arrangements with their doctor are advised to do so at once and all midwife cases are urged to have a physician examine them to be sure there is no condition that would be likely to cause complications for the midwife or mother. Our midwives are allowed 'to catch' only the babies of those expected to make normal deliveries."

"There are so many mothers who never see the physician until they are confined that we feel we have been handicapped in the past. We have really accomplished so very little compared with the apparent needs. Recently, however, the county medical society has approved a plan that is most encouraging. I am now permitted to do a urinalysis, take the blood pressure, and get a specimen of blood on all midwife cases. If anything abnormal occurs, the midwife must refuse to wait on the patient until a physician has treated her and states that the mother is in good condition. I also render the same prenatal service to physicians' cases when the physician requests the service. Particularly is this true of rural women who have no way to get to a physician during the prenatal period."

"I thought perhaps you would like to look over our records. This will give you an idea of the information we get from our patients and of the advice we attempt to give them. And this is a sheet we use to report our findings to the physicians. If you have a certain routine regarding medication, treatment, etc., I would like for you to sign what we call 'standing orders,' for we, as public health nurses, do not advise any sort of medication or treatment except through the physician."

"Our clubs furnish loan packs containing sheets, towels, rags, perineal pads, an adult and an infant gown, and an infant band. These are furnished to families who do not have linens to prepare for a clean delivery."

"I hope I have not taken up too much of your time and if you would be kind enough to permit me, I should like to come back soon and tell you something of the other phases of my work."

The county health nurse is prepared to render these services in each of the counties where a county health unit is maintained. They are helpful to the mother and child as well as of assistance to the practicing physicians.

S. B. J.

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## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### STATE COMMITTEE OF PUBLIC HEALTH ADOPTS NEW REGULATIONS

At its recent meeting, the State Committee of Public Health approved, by adopting a number of suggested regulations, a rather ambitious program of the Division of Inspection of the Bureau of Sanitation.

During the series of conferences with the personnel of county health departments held last December, it was made known that the policy of the State Department of Health would henceforth be to hold county health departments fully responsible for sanitary conditions in individual counties, the state department undertaking to make regular assays or appraisals of results achieved. It had already developed, as was emphasized at these conferences, that the various regulations then in effect were in some respects incomplete, and in many instances ambiguous; and that, lacking a detailed manual of instructions, county sanitation officers were frequently unable to decide

what to require or what steps to take in certain contingencies. In February it became apparent that the regulation of places where malt and alcoholic beverages are sold would eventually become necessary.

Consequently, the drafting of new regulations to govern the operation of establishments in which foods, confections, and beverages (other than carbonated drinks and fruit juices) are manufactured, prepared, or sold, was undertaken. At that time there were extant Eating Establishment Regulations, Bakery Regulations, and Soda Fountain Regulations, similar in essential features but differing in certain individualistic provisions. It was decided to combine these into one set of regulations, and also to word these regulations so as to pertain to other types of establishments, such as beer parlors, candy factories, canneries, fruit juice stands, macaroni and spaghetti factories, meat markets, peanut product factories, pickle factories, sandwich makers, specialty factories, making doughnuts, potato chips, mayonnaise, ice cream cones, etc., and others as they develop. This has been done by adhering to principles of sanitation applying to all.

It would be too space consuming to outline these regulations in detail. The outstanding features include (1) the mandatory provision of hot water for washing repeatedly used drinking vessels, whether at eating places, soda fountains, fruit juice stands, or beer parlors; (2) the provision of a permit system, whereby the health officer is enabled to control the operation of establishments in unsuitable surroundings or by unsatisfactory methods, by withholding permits therefor; and (3) provision for the denaturing and destruction of unsafe food products, authorization for which was not heretofore in the regulations.

The Ice Cream Regulations were amended to include (2) and (3) above, and the Oyster Regulations were amended to include (3) above, and a provision for registration of truckers.

In cooperation with the Food and Drug Administration of the U. S. Department of Agriculture, and the State Health Departments of Mississippi and Louisiana, an entirely new draft of Crab Meat Regulations was substituted for the regulations hurriedly drafted and adopted in June, 1935. These regulations are as complete and modern as any in effect in this country, and have been enforced throughout the present crab meat season, in anticipation of their adoption, with the result that the crab meat pickling plants of the Alabama coastal region are in excellent physical condition.

The Legislature of 1935 amended the Public Health Laws, including the Hotel Law, to provide for the adoption of regulations governing the operation of hotels by the State Committee of Public Health. Tentative regulations were drafted and approved by a special committee of the Alabama Hotel Men's Association, and were also adopted at the recent meeting of the State Committee of Public Health.

The recent rapid increase in the number of establishments known as "tourist camps," together with the anticipated adoption of Hotel Regulations, made the control of the sanitation features of tourist camps not only desirable but necessary. Consequently, following a careful study of the tourist camp regulations and ordinances of a number of states and cities, regulations prescribing absolute minimum sanitation requirements, providing for certification of camps attaining a certain level of sanitation and accommodations, and authorizing closure of camps which do not conform to the minimum requirements, were drafted and have been adopted. Incidentally, a survey of the approximately 200 such camps in the state was completed during the month of August, and will be the subject of a subsequent article.

The reconstitution of concentrated orange and other fruit juices, by the addition of sugar and water, has been a practice of considerable extent at dairy farms and milk plants for the past several years, primarily because these establishments are normally equipped with mixing, bottling, and capping equipment, and refrigeration facilities, and make daily distribution whereby the freshness of these beverages can be maintained. In justice to milk distributors not engaged in this practice, and to the carbonated beverage industry, certain restrictions to the bottling of fruit juice beverages appeared to be in order. These restrictions have been embodied in several amendments to the Bottling Plant Regulations, also adopted at the recent meeting.

The mimeographing of these regulations, or their preparation for the printer, and particularly the drafting of inspection forms, application for permit and permit forms, records, and the formulation of the many details incident to the application of these regulations as soon as possible after October 1, 1937, when they, except the Crab Meat Regulations, become effective, have been an undertaking of considerable magnitude, but it is anticipated that the necessary material and forms will be ready in time. They will be distributed as needed, and it is planned to hold group conferences of sanitation officers whereby they may be instructed in the procedure for effectuating these new regulations in accordance with the policy enunciated last December.

C. A. A.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### PELLAGRA*

During the past quarter century, the recorded number of female deaths from pellagra has averaged more than twice that for males. Approximately 7 out of 10 deaths from this disease were of females. The ratio of female deaths to male has been as high as 3 to 1 (1921) and only once has it fallen below 2 to 1 (1919); the mean annual ratio was 2.4 to 1.

According to the last Federal Census (1930), the ratio of females to males in Alabama was 1.012, showing that females exceeded the males by a comparatively small amount. Approximately 51 per cent of the population in that area of the state having a high incidence of pellagra deaths were females—50 per cent in the remainder of the state.

At the time of the last census, 28 per cent of the population in Alabama resided in urban territory (incorporated places of 2,500 or more). During the quinquennium (1931-1935), 519 or 30 per cent of the deaths from this disease were of urban residents. Seventy-three (73) per cent of the 519 deaths were of females; 52 per cent of the residents of urban territory were females.

*Third in a series on the subject, begun in the June number.

According to the U. S. Census figures of 1930, 72 per cent of the population resided in rural territory (incorporated places of less than 2,500 or unincorporated places). Seventy per cent (70) of all pellagra deaths which occurred during the above quinquennium were of rural residents. Of the 1,203 rural deaths, 67 per cent were of females. Less than 50 per cent of the rural population were females.

TABLE 1

DEATHS FROM PELLAGRA ACCORDING TO AGE AND SEX: ALABAMA 1924-1935

| Age | Number | | | Per Cent | | |
|---|---|---|---|---|---|---|
| | Total | Male | Female | Total | Male | Female |
| Total | 5,568 | 1,636 | 3,932 | 100.0 | 100.0 | 100.0 |
| Under 5 yrs. | 41 | 21 | 20 | 0.7 | 1.3 | 0.5 |
| 5-9 yrs. | 39 | 16 | 23 | 0.7 | 1.0 | 0.6 |
| 10-14 | 40 | 14 | 26 | 0.7 | 0.9 | 0.7 |
| 15-19 | 147 | 31 | 116 | 2.6 | 1.9 | 3.0 |
| 20-24 | 335 | 37 | 298 | 6.2 | 2.3 | 7.6 |
| 25-34 | 852 | 122 | 730 | 15.4 | 7.5 | 18.7 |
| 35-44 | 960 | 162 | 798 | 17.4 | 10.0 | 20.4 |
| 45-54 | 992 | 292 | 700 | 17.9 | 18.0 | 17.9 |
| 55-64 | 878 | 372 | 506 | 15.9 | 22.9 | 13.0 |
| 65-74 | 759 | 340 | 419 | 13.7 | 21.0 | 10.7 |
| 75-84 | 403 | 182 | 221 | 7.3 | 11.2 | 5.6 |
| 85 and over | 82 | 32 | 50 | 1.5 | 2.0 | 1.3 |
| Unknown | 40 | 15 | 25 | | | |

Male deaths (1924-1935) were proportionately greater than female in both age groups (under 15 years) and (45 years and over). In that of (15-44) years, more than twice as many deaths per 100 were of females than males. See Table 1 and Fig. 1. Three out of every four male

MEAN ANNUAL PER CENT OF DEATHS FROM PELLAGRA ACCORDING TO AGE AND SEX: ALABAMA, 1924-35

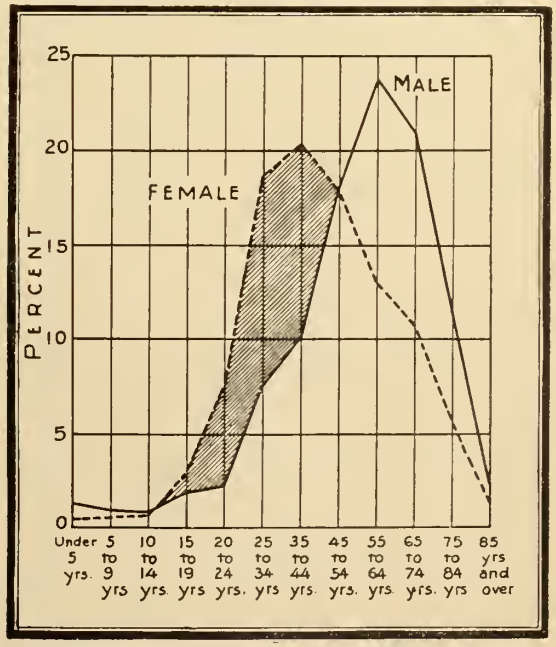



Fig. 1

deaths were of persons 45 years or over. Less than half of the female deaths were in this age group.

The per cent distribution of deaths from pellagra, according to month, varies with sex and geographic area. In rural territory, female deaths tend to reach a peak in the summer months more markedly than male. A greater proportion of male deaths occur during the first four months of the year (34.9 per cent) than female (28.9 per cent). On the other hand, in urban territory the tendency for male deaths to reach a peak in the summer is more marked than for female. During March and April combined, an average of 21.4 per cent of the female deaths occurred compared with 13.6 per cent of the male.

A greater proportion (34.9 per cent) of the rural male deaths occurred during the first four months of the year than urban male (31.4 per cent) and the midsummer peaking tendency was strongest in the latter group. Similarly, among females, a greater proportion of urban deaths (36.4 per cent) occurred than rural (28.9 per cent) and the summer peaking tendency was more pronounced in the latter group.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 June | July | Estimated Expectancy July |
|---|---|---|---|
| Typhoid | 33 | 61 | 142 |
| Typhus | 43 | 74 | 44 |
| Malaria | 515 | 832 | 338 |
| Smallpox | 1 | 2 | 1 |
| Measles | 120 | 69 | 113 |
| Scarlet fever | 18 | 22 | 40 |
| Whooping cough | 248 | 234 | 118 |
| Diphtheria | 35 | 35 | 46 |
| Influenza | 49 | 37 | 15 |
| Mumps | 72 | 57 | 21 |
| Poliomyelitis | 10 | 9 | 5 |
| Encephalitis | 2 | 0 | 2 |
| Chickenpox | 32 | 10 | 16 |
| Tetanus | 2 | 8 | 7 |
| Tuberculosis | 258 | 317 | 291 |
| Pellagra | 54 | 60 | 96 |
| Meningitis | 29 | 21 | 4 |
| Pneumonia | 122 | 118 | 58 |
| Syphilis | 1462 | 1434 | 189 |
| Chancroid | 9 | 9 | 8 |
| Gonorrhea | 339 | 396 | 193 |
| Ophthalmia neonatorum | 2 | 2 | 2 |
| Trachoma | 1 | 0 | 0 |
| Tularemia | 0 | 1 | 1 |
| Undulant fever | 9 | 3 | 1 |
| Dengue | 0 | 0 | 0 |
| Amebic dysentery | 1 | 3 | 0 |
| Rabies—Human cases | 0 | 1 | 0 |
| Positive animal heads | 79 | 60 | ..... |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

# *Medical News*

*(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)*

The next written examination and review of case histories of Group B. applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 6, 1937.

The next general examination for all candidates (Groups A and B) will be held in San Francisco, Cal., on June 13 and 14, 1938, immediately prior to the American Medical Association meeting.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's office not later than sixty days prior to the scheduled dates of examination.

* * *

Announcement is made of the 16th annual clinical and scientific session of the American Congress of Physical Therapy, Netherland Plaza Hotel, Cincinnati. The program includes many special features: September 20, 21, 22, 23 and 24, at the sectional meetings in the specialties, symposia on short wave diathermy, hyperpyrexia, electrosurgery, etc. Fever therapy and the treatment of vascular diseases occupy an important place and will be discussed by prominent workers in the field. The educational aspects of physical therapy and the relationship of physical therapy technicians to physicians and hospital departments will be thoroughly dealt with. Other features include technical and scientific exhibits and a full day of hospital clinics where technic will be adequately demonstrated.

Physicians, their technical assistants, and nurses working in institutional departments of physical therapy are urged to attend this important session. It undoubtedly will be one of the outstanding medical gatherings of the year. There will be no registration fee.

* * *

The Association of Military Surgeons of the United States will meet in Los Angeles, California, on October 14, 15, 16, 1937.

Once more, during the coming fall, winter and spring, the Voices of Medicine will salute the people of America, with the toast *"Your Health."* This is the well-known title of the radio program of the American Medical Association and the National Broadcasting Company. The coming season will be the fifth; the first two years were devoted to health talks, and the last two seasons to dramatized health messages. This year, the salutation will be addressed particularly to the teachers and students in junior and senior high schools, in the hope that the program will be helpful in illustrating, amplifying, and enriching the health teaching in those schools. The program will be on the air while schools are in session, so that the program may be utilized directly in the thousands of schools which now have or soon will have radio and public address systems reaching the class-rooms. Programs will be announced in advance in *Hygeia*, The Health Magazine. While the program is planned especially for high schools, it will not sacrifice the interest which it has held for listeners in the home. To teachers, students and stay-at-homes, the American Medical Association and the National Broadcasting Company will address their message of health education with the familiar musical theme *Hale and Hearty*, written especially for the program, and the toast, "To America's Schools, *Your Health!*"

* * *

The Twenty-second Annual Session of the American College of Physicians will be held in New York City, with headquarters at the Waldorf-Astoria Hotel, April 4-8, 1938.

Dr. James H. Means, of Boston, is President of the College, and will have charge of the program of general scientific sessions. Dr. James Alex. Miller, of New York City, has been appointed General Chairman of the Session, and will be in charge of the program of clinics and demonstrations in the hospitals and medical schools and of the program of Round Table Discussions to be conducted at headquarters.

* * *

The ninth annual training course for Medical Department reservists of the Army and Navy will be held at the Mayo Foundation, Rochester, Minnesota, October 3 to 16, 1937.

This training course was first inaugurated by the Seventh Corps Area at the request of the Mayo Foundation to give training in military medicine to the young medical men connected with the foundation. Other reserve officers requested permission to enroll and to take advantage of the opportunity to attend the clinical presentations during the morning hours. Such permission was granted and attendance has become so increasingly popular that it is now necessary to limit enrollment.

The program will follow the plan of past years. The morning hours will be devoted entirely to professional work in special clinics and study groups. Officers in attendance may select the course they wish to follow from the wide variety of presentations offered. The afternoon and evening will be devoted to a medico-military program under the direction of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy).

This training is on an inactive duty status and is without expense to the government. Enrollment is open to all Army and Navy reservists of the Medical Departments in good standing. Applications should be submitted to the Surgeon of the Seventh Corps Area, Omaha, Nebraska, or to the Surgeon of the Ninth Naval District, Great Lakes, Illinois. Enrollment is limited to two hundred.

The Surgeons General of the Army and Navy have signified that they will attend and it is believed that the Surgeon General of the Public Health Service will also appear on the program.

* * *

In answer to the widespread demand for an agency which will attempt to certify competent surgeons the American Board of Surgery has recently been organized. This Board is a member of the Advisory Board of Medical Specialties which includes all of the boards of certification for the different medical specialties which have been already organized. Since boards were in existence for the certification of practitioners of some of the surgical specialties such as ophthalmology, otolaryngology, obstetrics and gynecology, genito-urinary sur-

gery and orthopedic surgery, it is expected that the American Board of Surgery will be responsible for the certification of general surgeons as well as those practicing in the remaining specialized subdivisions of surgery.

Acting upon the invitation of the American Surgical Association the following surgical societies cooperated in the creation of the American Board of Surgery: the American Surgical Association, the Surgical Section of the American Medical Association, the American College of Surgeons, the Southern Surgical Association, the Western Surgical Association, the Pacific Coast Surgical Association and the New England Surgical Society.

The Board will hold its first examination (Part I, written) on September 20, 1937. All inquiries concerning applications for this examination should be received by the secretary's office promptly.

Requests for booklets of information, application blanks, and other information should be addressed to the Secretary, Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia, Pennsylvania.

* * *

The Fifteenth Annual Meeting of the Academy of Physical Medicine will be held at the Hotel Walton, Philadelphia, October 19, 20, 21, 1937.

The Academy, which is international in scope, will present a scientific program based on reports of the most recent research and practice of the various specialties. In addition to the lectures, demonstration clinics will be held at the Hospitals of the University of Pennsylvania, Jefferson Medical College, and Temple University.

## *Book Abstracts and Reviews*

**Annual Reprints Of The Reports Of The Council on Pharmacy And Chemistry** of the American Medical Association for 1936, with the Comments That Have Appeared in the Journal. Cloth. Price, $1. Pp. 104. Chicago: American Medical Association.

This book is essentially a record of the negative actions of that distinguished body, the Council on Pharmacy and Chemistry of the American Medical Association; that is, it sets forth the findings concerning medicinal preparations which the Council has voted to be unacceptable for recognition and use by the medical profession. Many of the reports record out-right rejection or the rescinding of previous acceptances; others report in a preliminary way on products which appear to have promise but are not yet sufficiently tested or controlled to be ready for general use by the profession.

Among the reports on out-and-out unacceptable products are Amend's Solution and the "Igol" products, iodine preparations marketed under misleading or unacceptable claims, the latter under an uninformative proprietary name; Androstine-Ciba, claimed to be a testicular extract and found to be an irrational combination of inactive preparations, marketed with unwarranted and misleading claims; Gadoment, a preparation of cod liver oil in a wax base with zinc oxide benzoin and phenol, proposed for use in the treatment of burns, cuts and minor skin irrations, found unacceptable as being an unoriginal product of insufficiently declared composition marketed under a coined proprietary name with unwarranted therapeutic claims, and indirectly advertised to the public; the "Carasyl" preparations which are essentially mixtures of psyllium flour, karaya gum and fig flour, marketed with unsubstantiated therapeutic claims under a proprietary name.

In 1934 the Council sponsored an exhaustive report on bacteriophage therapy which pointed out that in view of the present status of knowledge, no such preparations could be accepted for New and Nonofficial Remedies. In this volume of the collected Council reports the Council declares the "Phagoid" preparations, a line of bacteriophage products, definitely unacceptable because they are offered to the medical profession with unscientific, unwarranted claims, thus encouraging physicians to use in a routine way medicaments, the therapeutic value of which had not been established, and because the preparations conflicted in other ways with the rules of the Council.

This volume includes a preliminary report on Trichophytin and Oidiomycin,—trichophyton preparations marketed by Lederle Laboratories, Inc. This report is a sequel to the preliminary report on Trichophyton Extract issued in 1932, which postponed consideration to await development of further clinical evidence on Trichophyton therapy. Also included in this volume is a report on the unacceptability of two trichophyton preparations, Dermatomycol and Dermotricofitin, distributed in this country by Ernst Bischoff Co., Inc., under the stated proprietary names without sufficiently declared composition and with unwarranted therapeutic claims.

Other preliminary reports are Refined and Concentrated Antipneumococcic Serum Type VII-Lederle, Present Status of Tetrachlorethylene (since accepted for N. N. R.), Smallpox Vaccine (From Chick Chorio-Allantoic Membrane)-Lilly, and Use of Trichloroethylene for General Anesthesia.

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**A Preface To Nervous Disease.** By Stanley Cobb, A. B., M. D., Bullard Professor of Neuropathology, Harvard Medical School, Baltimore: William Wood and Company, 1936. 173 pages. $2.50.

Dr. Cobb's fourteen years experience in teaching second year students has taught him to frankly simplify and schematize in order to make the student understand the important principles, and one appreciates the ability of the author to put over

the histological pathology of nervous diseases heretofore difficult for the student and physician to understand.

A particularly fine review is presented of encephalitis and spinal cord lesions including neurosyphilis, dementia paralytica or paresis, tabes, meningitis, poliomyelitis, etc., and the various meritorious theories concerning the causation of diseases are discussed with an injection of up-to-date viewpoints.

Exceptionally fine and unique diagrams successfully illustrate the many interesting points emphasized by Dr. Cobb and numerous tables and figures are furnished which permit the reader to quickly scan and absorb the fruits of long and tedious experimental work.

Especially praiseworthy is the author's clear description of the functions of the cranial nerves in which he groups and describes the nerves according to the functions they serve, i. e., first, olfactory; second, optic; third and fourth, oculomotor; fifth, masticator; sixth, seventh and eighth, sentinal; and ninth, tenth, eleventh and twelfth, nutritional. An accompanying diagram depicts their origin and emergence from the brain stem.

Adherence to principles that are fairly well established has kept the book small for it has been the aim of the author to mention only those anatomic structures the physiology of which is known and to describe only the pathology that has fundamental significance.

Although the book is entitled a "Preface to Nervous Disease" and is designed to equip the student with a three dimensional orientation towards neurology and psychiatry, it is earnestly recommended to be read by all physicians interested in diseases of the nervous system.

J. J. R.

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**New And Nonofficial Remedies, 1937.** Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1937. Cloth. Price. $1.50. Pp. 557, LXIV. Chicago: American Medical Association, 1937.

The annual editions of this volume contain all that the busy physician needs to know concerning the newer preparations which he is daily importuned by the detail men of the pharmaceutical manufacturers to use. The remedies listed and described here have been examined and found acceptable by the Council on Pharmacy and Chemistry, the deliberative body charged by the American Medical Association with the performance of this service for the practitioner, who has not the time or means to make the determinations for himself.

Some new drugs have been added in the 1937 edition, the descriptions of which will be found in the groupings to which they belong. There are some noteworthy changes in classification. The various vaso-constrictors, Benzedrine, Ephedrine, Epinephrine and Neo-Synephrin, have been grouped together as Phenylalkylamine derivatives under the heading "Epinephrine and Related Preparations." This terminology is in keeping with the Council's policy of avoiding therapeutically suggestive names. Another similar change is the abandonment of the classification "Medicinal Foods" and substitution of a chapter under the title "Vitamins and Vitamin Preparations for Therapeutic and Prophylactic Use" in the previous edition. The consideration of other classes of food preparations was long ago transferred to the Council on Foods. The chapter "Organs of Animals" which has heretofore included only endocrine preparations has been expanded by transfers to this heading of the chapters Liver and Stomach Preparations, and Insulin.

The book contains general articles, descriptive of the classification under which the various drugs are listed. According to the preface, more or less thorough-going revisions have been made of the articles: Arsenic Compounds; Compounds Containing Trivalent Arsenic; Compounds Containing Pentavalent Arsenic; Bismuth Compounds; Epinephrine and Related Preparations; Iodine Compounds for Systemic Use; Mercury and Mercury Compounds; Pituitary Gland; Salicylic Acid Compounds; Serums and Vaccines; Antipneumococcic Serums; Silver Preparations; Tannic Acid Derivatives.

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**A Five-Year Study Of Tuberculosis Among Negroes.** Published by the National Tuberculosis Association, 50 West 50th Street, New York City. 77 pages.

Negroes constitute approximately 10 per cent of the population of the United States and nearly 36 per cent of the population of Alabama. In this state, as in the United States as a whole, tuberculosis ranks second from the top as a cause of death among Negroes, being outranked here by heart disease alone. In two communities of equal size, one inhabited entirely by Negroes and the other by white people, approximately three times as many of the Negroes as white people will die within a given period, if the law of averages holds good.

The South, with its high proportion of Negroes, thus has much at stake in the effort to reduce the tuberculosis toll among the men, women and children of the colored race.

There should, therefore, be much of interest to physicians and others in Alabama and elsewhere in the South in this recently completed report of a five-year study of tuberculosis among Negroes. This report, prepared under the general supervision of the Committee on Tuberculosis Among Negroes of the National Tuberculosis Association, which includes among its membership Dr. J. N. Baker, State Health Officer, is largely the work of Dr. Cameron St. C. Guild, who has spent many years in the field represented by this booklet and has become one of the country's leading authorities on tuberculosis as it affects the colored race.

A number of highly informative tables are presented for the instruction of the reader. Some of these show real progress in the conquest of the Great White Plague among the Negroes, while others reveal, in the incontrovertible language of statistics, the immensity of the task ahead. There is, for instance, a table showing that, between 1910 and 1934, inclusive, the Negro tuberculosis death rate in the United States Registration Area dropped from 447.7 to 146.4 per 100,000 population. This represents a decrease of more than 67 per cent—an achievement indeed. During the same period,

however, the white tuberculosis death rate dropped from 148.3 to 45.1 per 100,000 population, or nearly 70 per cent. Thus the ratio of colored to white tuberculosis mortality remained almost unchanged, increasing from 3.0 to 3.2 per 100,000 population.

The booklet is devoted largely to a consideration of this ratio and the conditions responsible for it. It discusses such matters as racial and economic handicaps, the lack—the very serious lack—of sanatorium beds for the tuberculous of both races, but especially of the colored race, inadequacy of medical and nursing attention, inadequate health education among Negroes, the relationship of other diseases to tuberculosis mortality, etc. More than a page is devoted to the supposed effect of syphilis upon a person's susceptibility to the Great White Plague, the author arriving at the conclusion that, while this disease apparently does not make a person more likely to contract tuberculosis, its presence reduces one's chance of recovery after one has become tuberculous.

"The important role which sanatorium treatment plays in any program for the control of tuberculosis is almost universally recognized," the author wrote. "We wish to emphasize, however, one fact which is sometimes overlooked, namely, that adequate facilities for hospitalization are doubly important in dealing with the Negro tuberculosis problem. The Negro race as a whole, being in the lower economic stratum, lives in greatly overcrowded quarters, the presence in which of an open case of tuberculosis often exposes relatively large numbers of individuals to massive and repeated doses of virulent tubercle bacilli. There are rarely facilities for caring for the patient at home, the diet is usually inadequate, and there is in most instances a dearth of knowledge as to what should be done. In the vast majority of Negro homes it is utterly impossible to provide for the patient those things which we know are essential for his recovery and equally impossible to give any adequate protection from infection to other members of the family."

Turning from a consideration of the need for sanatorium beds for Negro tuberculosis sufferers, the writer sadly turns to realities:

"Here, for example, we find Alabama with 1,056 (colored) deaths from tuberculosis in 1934 and only 55 beds available for colored patients; Mississippi with 919 deaths and 50 beds available; Tennessee, 854 deaths and 218 beds."

In Alabama, as in the South generally, white children grow up in close physical association with Negroes. Their nurses spend the night and such other leisure time as is vouchsafed them in their shacks, usually reeking with squalor and disease, and often return to work in the "big house" without as much as washing their hands. Those who prepare the food the white people eat are almost always members of the black race, not infrequently suffering from the diseases to which that race is especially susceptible, including, of course, tuberculosis. It is certain, therefore, that the abnormally high Negro tuberculosis mortality and morbidity rates have an effect upon these rates as they concern the white race.

"A Five-Year Study of Tuberculosis Among Negroes" throws the light of print upon the tuberculosis situation among the members of the colored race. With the knowledge which it makes available, the white medical and lay public would do well to take steps to improve the conditions herein disclosed.

H. T.

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**Tuberculosis Education.** By Elma Rood. Cloth. 125 pages with 16 charts. Madison College, Tenn.: Rural School Press.

This manual was written primarily to increase the public's knowledge of tuberculosis, create a public interest and a degree of sensitivity concerning this disease. Adequate, interesting, and convincingly stimulating outlines are suggested for programs to use in arousing public interest and civic obligation both for future responsibility and an understanding control of this disease.

The various methods of approach, such as radio and newspaper publicity, school health education, and the lay public's enlightenment are discussed and elaborated upon in a very readable fashion. It can be both instructive to the layman and a simple means of approach and logical educational program for the physician in conveying information regarding tuberculosis to his patients and clientele.

Many subjects for dramatization are discussed and stimulating questionnaires suggested. The very brevity and condensation of the subjects discussed lends to the readability of the book. The author has successfully kept away from long, scientific discussions of her subject and this very fact has added crispness and tartness to what might otherwise have been a dull subject.

Diagrams, history, and simple graphs and charts all add variety, and the lights, the shades, and the tinting that go to make up a complete and effective picture are included.

H. T.

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**Emotional Adjustment in Marriage.** By LeMon Clark, M. S., M. D., Assistant in Obstetrics and Gynecology, University of Illinois College of Medicine. The C. V. Mosby Company, publishers. St. Louis, Mo. 1937. Cloth. 261 pages. Price $3.00 net.

In this comparatively small book the author has condensed important observations from the works of Havelock Ellis, Van De Velde, Robie, Long, Dickinson and others. No claim is made of originality except in the method of presentation. The author can never be accused of being offensive in the presentation of intimate details, nor can he be accused of side-stepping any issues which might result from a truthful presentation of facts. Though many of his conclusions may not fit in with the present attitudes of what is right and what is wrong, nevertheless one feels that his conclusions are the only rational ones that can be derived and one is inclined to agree with them after reading the facts upon which they are based. It requires some courage to think rationally and to reach conclusions that are not entirely in accord with those dictated by religion, custom and morals.

Dickinson has stated that the doctor who would accomplish the most good is the one who attempts to forestall trouble rather than treat it after it has begun. A doctor who must counsel his patients in

working out the details of their married life will find in this volume not only an excellent guide but in addition many suggestions which may be quoted verbatim. Any adult, married or about to be married, will find in this book important facts relative to his or her sex life and will derive much benefit from reading the views of a doctor and sociologist who obviously thinks clearly.

Of frigidity he says: "Sexual frigidity in the wife must be most commonly treated in the husband." As to the time of life when one should marry, he quotes Will Durant who said: "To postpone marriage from the age of love and desire to the age of finance and caution puts upon youth the choice of morbid continence or a perilous promiscuity." Of preparation for marriage he says: "In our literature love and marriage are given a much too romantic setting. That it means work, responsibility and effort, that there is a job of living together which must be done and which is not solved merely by a strong emotion is not brought clearly enough into the field of attention. When young people are really educated for marriage these factors will be given adequate weight." "When young women enter marriage with a desire to do all they can to promote their husband's welfare, wifehood will again become a profession and as such will possess new dignity." Of divorce he says:: "Divorce should be a matter of desire and consent on the part of the couple involved."

Whether one agrees with the author or not, he must be impressed with the honesty with which he has presented the facts and it seems certain that in the future many of his suggestions will be recognized as obvious solutions of difficult marital problems.

C. K. W.

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**Clinical Allergy:** By Lois Tuft, M. D., Chief of Clinic of Allergy and Applied Immunology, Temple University Hospital; Associate in Immunology, Temple University School of Medicine; Director of Laboratories, Pennsylvania Department of Health, Philadelphia. Introduction by John A. Kolmer, M. D., Dr. P. H., D. Sc., LL. D., L. H. D., Professor of Medicine, Temple University: Director of Research Institute of Cutaneous Medicine, Philadelphia. 711 pages with 82 illustrations. Philadelphia and London. W. B. Saunders Company, 1937. Cloth. $8.00 net.

Though the author states that the book is written primarily for the general practitioner, the reviewer feels that there will be few general practitioners who will be able to assimilate the large amount of details contained in this volume. There are much briefer volumes on the market for this purpose. On the other hand those who are primarily interested in allergy will find that this volume covers the entire subject in a very thorough manner. The order of presentation is logical. The descriptions are unusually clear and there is an absence of divergent opinions and theoretical discussions that will be missed only by the research worker who wants to know everything.

The chapter dealing with the theoretical discussion of allergy and anaphylaxis is one of the clearest descriptions of the subject in the literature. Successive chapters deal with methods of testing, the various types of allergy, classified according to the offending antigen—serum, drug, food, bacterial, pollen and physical allergy—and the various clinical manifestations of the allergic state—asthma, allergic rhinitis, hay-fever, gastro-intestinal allergy, migraine, urticaria, atopic dermatitis and contact dermatitis. A separate chapter is devoted to the manifestations of allergy in children.

The appendix includes much valuable data dealing with such subjects as the following: The technic of passive transfer, the preparation of extracts for testing and treatment, the extracting of allergenic oils, for patch testing, methods of making pollen surveys, outlines for directions for patients with various allergic manifestations, a list of allergens contained in all household materials, lists of allergens and their sources, various routine elimination diets and recipes.

A rather large number of volumes on the subject of allergy have been printed within recent years. This one seems worthy of a permanent place in the library of any one interested in allergy.

C. K. W.

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**Syphilis—The Next Great Plague To Go.** By Morris Fishbein, M. D., Editor, Journal of the American Medical Association and of Hygeia, the Health Magazine. David McKay Company. Philadelphia. 1937. Cloth. 70 pages. Price $1 00.

Now that the Surgeon General has designated syphilis as "public enemy number 1" and has directed the big guns of the medical profession against it, it is necessary that doctors and non-medical leaders of the community make every effort to keep themselves well informed on all matters pertaining to the disease and the methods of eradicating it. This little book of Fishbein's contains nothing new to any doctor, but it expresses very clearly, simply and without technicalities what the layman should know about syphilis. The book is written so simply that a grammar school child could understand it; so could the average laborer in this state. It is the kind of book that might be put in a school library or used as a text in school or left in the rest room of any large industrial plant. Its widespread dissemination should be good publicity in the campaign against syphilis but frankly a reprint of Parran's article in the Reader's Digest which can be bought for two cents would serve equally well. However, for the juvenile mind, the book should serve a definite purpose.

C. K. W.

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**An Introduction to Dermatology.** By Richard L. Sutton, M. D., Sc. D., LL. D., F. R. S. (Edin.). Professor of Dermatology, University of Kansas School of Medicine; and Richard L. Sutton, Jr., A. M., M. D., L. R. C. P. (Edin.), Instructor in Dermatology, University of Kansas School of Medicine. The C. V. Mosby Company, St. Louis, Mo. Third edition. 1937. Cloth. 666 pages. Price $5.00.

The primary object of this volume is to offer to the student of medicine a text-book of dermatology sufficiently brief and concise to serve as a practical beginner's text. Actually, the author has condensed so wisely that his book contains enough to serve as a reference book for the use of general practitioners and internists. Only the specialists in dermatology need to search farther for the facts needed in his daily practice for the authors discuss more dermatological diseases than most practitioners of medicine will ever see.

Each condition is well described, generally illustrated by a good photograph and with at least one method of treatment given in detail. This is

really all the information wanted by any one except the dermatologist. The reviewer feels also that it is better to own a small book and read it through than to own a large one and let it remain on the shelf.

C. K. W.

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**The First Supplement To The Pharmacopeia Of The United States of America.** Eleventh Decennial Revision. By authority of the United States Pharmacopeial Convention. Official December 1, 1937. Mack Printing Company. Easton, Pa., publishers.

Supplements to the Pharmacopeia have been established to revise standards, tests and assays and to add new therapeutic agents at any time during the ten-year interval between revisions of the Pharmacopeia. A list of corrections to U. S. P. XI was published before the XIth edition became official. These corrections have become official. These corrections along with approved revisions have been incorporated in this supplement.

If a paragraph is altered, the whole paragraph in revised form is included in the supplement. All important changes in the revision are stressed by underlining those portions of the text that have been changed.

The supplement is indexed and future supplements will contain a cumulative index. The changes in the supplement will become effective December 1, 1937.

With the supplement comes a cover to hold such supplements as will be issued before the XIIth revision is printed.

C. K. W.

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**The Technic Of Local Anesthesia.** By Arthur E. Hertzler, A. M., Ph. D., LL. D., F. A. C. S., Professor of Surgery in the University of Kansas, Surgeon to the Halstead Hospital, Halstead, Kansas; to St. Luke's Hospital and St. Mary's Hospital, Kansas City, Missouri; and to the Providence Hospital, Kansas City, Kansas. 6th edition. The C. V. Mosby Company, 1937. 284 pages. Cloth. Price $5.00.

The fact that Hertzler's "Technic of Local Anesthesia" has reached its sixth edition is ample proof of its success in filling the need of the profession for a practical book on this subject. The author stresses the advantage of small amounts of solution delivered accurately into the skin or sensory nerves over mass infiltration with production of edema. The various types of local anesthetics are described, the technic of administration presented and the methods of preparing the field for various operations is outlined.

The sixth edition contains a few minor changes with considerable revision of the chapter on spinal anesthesia. Any one interested in owning a book dealing with the subject of local anesthetics will find this volume of Hertzler's one of the best in the English language. One who owns a fifth edition will find too little change in the text to warrant supplanting it with a sixth edition.

C. K. W.

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**Vitamins In Theory and Practice.** By Leslie J. Harris, Sc. D., D. Sc. Nutritional Laboratory, University of Cambridge and Medical Research Council. The Macmillan Company, New York; University Press, Cambridge. Second Edition, 1937. 230 pages. Price $3.00.

This book contains information which should be of value to any person interested in nutrition and its allied subjects. It is written in a readily understandable language and manner. When technical language is used the author explains his terms so that even the lay person, who may be interested, can understand.

The author presents rather fully the romantic history relative to the discovery of the vitamins and explains something of the process by which the nomenclature of each new vitamin is established. A chapter is devoted to the discussion of each vitamin including the following phases: historical consideration, effect of deficiency upon the human race and animals, a brief description of the characteristic deficiency diseases, isolation and chemical properties, lists of foods containing each vitamin and methods of measuring the vitamin content of common foods, and the action of the vitamins in the body. In the concluding chapter the author gives a very practical discussion of "Dietetics—What to Eat," emphasizing the importance of including in the everyday diet ample amounts of proteins, carbohydrates, fats, vitamins, minerals and water. The dietary faults of those of the middle economic strata are pointed out. Special attention is given to the diet of mothers during pregnancy and lactation and also to the diet of babies.

The book is very timely, including recent theories and experimental observations concerning the vitamins. The material presented is of practical interest and is based upon scientific theories and findings.

M. M. W.

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**Obstetric And Gynecologic Nursing.** By Frederick H. Falls, M. S., M. D., F. A. C. S., Professor of Obstetrics and Gynecology, University of Illinois College of Medicine, and Jane R. McLaughlin, B. A., R. N., Supervisor of Department of Obstetrics and Gynecology, Research and Educational Hospital, University of Illinois College of Medicine. The C. V. Mosby Company, publishers, St. Louis, Mo. 1937. Cloth. 492 pages. Illustrated. Price $3.00.

In this book on obstetrics and gynecology nursing, the authors have condensed the essentials of these two associated branches of medicine. In order to conserve space, the authors have listed, in groups, etiologic factors, symptoms, signs and methods of treatment—all condensed and tersely phrased. This adds to its value to the student and graduate nurse.

The section of the book dealing with gynecology is quite brief and condensed and the facts are frequently presented in tabular form. The diseases of the pelvic cellular tissue correlate with the mode of spread of pelvic infection.

It is a splendid book for student and graduate nurses. Frequent reference to it will improve markedly their capacities for obstetric nursing.

A. E. T.

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# *Truth About Medicines*

## ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following apparatus have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Emerson Infant Respirator.—This unit

is designed for administering artificial resuscitation of new-born babies whose respiration is delayed or is of poor quality. It will provide continuous artificial respiration over extended periods of time. This unit is hand operated. It is not felt to be advisable in cases of difficult delivery in which intracranial damage may have been done. Its advantage in acute cases of short duration is doubtful. J. H. Emerson, Cambridge, Mass. (J. A. M. A., July 10, 1937, p. 131.)

High Tension (Models CP-990 and HCP-990).—These electrosurgical units, designed for intermittent operation, are recommended for electrocoagulation, electrodesiccation and electrosurgery. Model CP-990 was used in a clinic acceptable to the Council and was found to be an effective instrument for the purpose for which it is intended. When Model CP-990 is built into a wooden cabinet it is known as Model HCP-990. High Tension Corporation, New York. (J. A. M. A., July 17, 1937, p. 207.)

Fischertherm Short Wave Diathermy Unit Model 104-B.—This unit is recommended for medical and surgical use. In construction it is essentially the same as the Fischertherm previously accepted by the Council. The chief difference is that the new machine is arranged for an "inductance cable." The temperature rise of the transformer came within the limits of safety prescribed by the Council. Burns may be produced but can be avoided by taking proper precautions when applying the applicators. The Fischer Corporation, Glendale, Calif. (J. A. M. A., July 24, 1937, p. 272.)

## PROPAGANDA FOR REFORM

The Alleged Decalcifying Effect of Cereals.—The Council on Foods has considered the evidence regarding the rationality of adding vitamin D in some form to cereals in order to overcome an anticalcifying effect supposed by some investigators to be a property of cereals. The Council concluded that there is no good evidence for the existence of a decalcifying factor in cereals, and that the hypothesis of the existence of such a factor is not needed to explain experimental results. Production of rickets in rats is effected by a diet which is low in vitamin D and which also has a disproportion of calcium and phosphorus. The concentration of the calcium and phosphorus in the diet is just as important as the ratio of the two in determining the degree of rickets produced. The experimental results observed and reported in the literature may be explained on the basis of the calcium and phosphorus ratio in the diet together with a knowledge of the availability of the phosphorus. Grain products not treated with vitamin D are wholesome foods. There appears to be no necessity at the present time to irradiate cereals or to add vitamin D substances to cereal products intended for general human consumption, in order to overcome the harmful effects of a hypothetical toxamin. (J. A. M. A., July 3, 1937, p. 30.)

Van-Tage.—The Bureau of Investigation reports that "Van-Tage," a "patent medicine" product of Gilbert H. Mosby, Van-Tage Medicine Company, Inc., Los Angeles (The Journal, Nov. 12, 1936, p. 1655), has been declared sold under false and fraudulent claims, according to a May 1937 report of the Food and Drug Administration. According to the government report, analysis showed the article to consist essentially of potassium iodide (0.2 Gm. per hundred milliliters), pepsin (0.1 Gm. per hundred milliliters) and extracts of plant drugs, including aloe, glycerin, water and flavoring material, preserved with salicylic acid. (J. A. M. A., July 3, 1937, p. 65.)

Germania Herb Tea.—The Bureau of Investigation reports that the Federal Trade Commission has ordered the Germania Tea Company, Minneapolis, and the Consolidated Drug Trade Products, Inc., Chicago, to stop representing that "Germania Herb Tea" performs any functions in a reducing program other than those of a laxative or purgative, and that "Germania Orange Pekoe Tea" performs any function or has any value in treating obesity, or in a reducing program other than in the caffeine supplied through its consumption. According to a report of the Federal Trade Commission dated June 18, 1937, the principal ingredients of Germania Herb Tea are senna, which has laxative and purgative qualities, and juniper, a diuretic, and the principal ingredient of Germania Orange Pekoe Tea is caffeine. (J. A. M. A., July 31, 1937, p. 375.)

Amend's Solution Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Amend's Solution was submitted by Amend Laboratories, Inc., as possessing "the therapeutic properties of any iodide or iodine preparation, with the added advantage of being non-toxic and non-irritating, and causing no disturbance whatever in the stomach or intestines, and producing not a single symptom of Iodism in any form." Amend's Solution was stated to contain: Iodine (Crystalline) 12.7 Gm., Irish moss 10.0 Gm., Water, q. s. ad 1,000.0 cc., with an unspecified portion of "paranucleinic" acid. It is stated that, for intramuscular or hypodermic medication, 0.3 per cent of sodium bicarbonate is added. Amend's Solution is now being marketed by Thos. Leeming & Co., Inc., New York, as sole distributor. As evidence for the usefulness of Amend's Solution, the firm presented ten testimonials from physicians, only one of which reports encountering any gastric irritation; none report iodism. Aside from the uncritical and fundamentally valueless nature of the evidence of therapeutic efficiency submitted by the firm, the Council found the additional objection that it is a mixture of well known substances for which there appears to be no warrant. The Council declared Amend's Solution not acceptable for New and Nonofficial Remedies because it is an unwarranted mixture marketed under misleading claims and intended to replace the use of well known, official preparations in similar disorders. (J. A. M. A., March 6, 1937, p. 803).

Trichophyton Extract (Polyvalent Dermatomycol) and Trichophytin Filtrate Polyvalent (Dermotricofitin) Not Acceptable for N. N. R.—Trichophyton Extract Polyvalent (Dermatomycol) and Trichophytin Filtrate Polyvalent (Dermotricofitin) were submitted for consideration of the Council on Pharmacy and Chemistry by the Laboratorio Brasileiro de Chimiotherapia, Ltda., Rio de Janeiro, Brazil. The Fells Medical Mfg. Co., Inc., New York City, were stated to be exclusive distributors of these products in the United States. Subsequently the firm of Ernst Bischoff & Co. took over their distribution. Trichophyton Extract Polyvalent (Dermatomycol) is stated to be a vaccine of lysed germs prepared from mycelial growth of over 300 strains of pathogenic fungi. It is not stated what these strains of pathogenic fungi are. This might be simply 300 strains of one particular organism of each of the five mentioned or of different cultures of the same organisms, i. e., taken from different sources. Trichophytin Filtrate Polyvalent (Dermotricofitin) is stated to be a filtrate of the culture of over 300 strains of Achorion, Trichophytin, Microsporum, Endodermophyton and Epidermophyton. It is intended exclusively for skin sensitivity tests in the diagnosis of dermatomycosis. It is well known that the therapeutic value of these products already on the market is quite limited. The material offered as evidence for the preparations under present consideration cannot be considered as adequate or convincing. The Council declared Trichophyton Extract (Dermatomycol) and Trichophytin Filtrate (Dermotricofitin) unacceptable for inclusion in New and Nonofficial Remedies because they are preparations of indefinitely declared composition and of unproved originality marketed under proprietary names with unwarranted therapeutic claims. (J. A. M. A., March 6, 1937, p. 804).

"Is Milk Cancer's Ally?"—The March issue of *Coronet* leads off with an article entitled "Is Milk Cancer's Ally?" which betrays a broad and comprehensive ignorance of milk and of cancer. Here is the old argument that modern civilized man died of cancer but the American Indian did not die of cancer. The answer is of course that modern civilized man has a life expectancy of some sixty years at birth whereas the life expectancy of the Indians was about thirty years at birth. The Indians simply did not live long enough to die of cancer. More than 90 per cent of deaths from cancer occur in persons over 40 years of age. Some preposterous arguments are made to show that cancer rates are higher in the states using the most milk. It may easily be shown that life expectancy is longer in the states using most milk because of better nourishment in those states. There is evidence that the article has already produced fear in the minds of some readers who do not stop to remember that neither the author of the article nor the magazine that prints it has the slightest scientific standing. (J. A. M. A., March 13, 1937, p. 889).

THE JOURNAL
OF
The Medical Association of The State of Alabama
Published Under the Auspices of the Board of Censors
Vol. 7, No. 4 Montgomery, Alabama October 1937

# CERTAIN PHASES OF PEDIATRIC UROLOGY*

By
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Charlotte, N. C.

## INTRODUCTION

In the time allotted, no more than a brief discussion of three phases of this recently important subject is in order. The sole object of this article then is to try to demonstrate by our studies and experience the following:

First, The indications for urologic studies in infancy and childhood;

Second, That cystoscopy, ureteral catheterization and complete urologic study in babies and children, is not the formidable procedure which many medical men believe it to be. It is a relatively simple study that compares favorably in gravity to bronchoscopy, paracentesis of the ear drum, spinal puncture, or any of these diagnostic or instrumental procedures which are routinely carried out in the examination of babies and children; and

In the third place, we want to briefly discuss and illustrate by case reports the common urinary obstructions that are frequently found as a result of complete urologic studies in babies and children. Many times the etiologic factor which is the basis for chronic pyuria is discovered. Of course, we are referring to the form of chronic pyuria that has been intelligently and intensively treated for a reasonable length of time.

## INDICATIONS

A study of the urinary tract in children shows that, with the exception of neoplasms of the bladder and prostate, "grown ups" and children have the same urologic diseases.

Symptoms that require investigation, in their order of importance, are as follows:

(1) Chronic urinary infection (pyuria acute and chronic),
(2) Dysuria,
(3) Pain,
(4) Tumor,
(5) Hematuria (not due to nephritis or persistent infection).

Heimholz in 1927 said that pediatricians are not doing their duty when they continue to treat a patient with chronic pyuria for months and even years without calling in a urologist to rule out a complicating abnormality of the urinary tract. He also feels that with intensive treatment for two to three weeks, if the pyuria does not clear up, cystoscopy, ureteral catheterization, and uretero-pyelograms are indicated. Cystoscopy or ill-advised instrumentation in babies and children shows serious lack of knowledge of one of the large problems in surgery.

*Pyuria*: In the first place, we feel it is difficult to place too much emphasis on properly collected specimens of urine. In female children only specimens taken with a catheter under sterile conditions are worth examining. In male children cleansing of the preputial sac and meatus with some antiseptic solution usually gives a satisfactory specimen. Every precaution to prevent contamination must be taken before delivering the specimen of urine to the laboratory for examination. We feel that, after intensive treatment for a month to six weeks, should infection still persist, a thorough urologic study should be made.

*Acute Persistent Pyelitis*: Campbell feels that acute infection in children which does not respond to medical treatment within five days should have a urologic study. Persistent septic temperature with repeated chills and sweats must have a thorough urologic examination. In this brief discussion we will not take up each individual case and describe symptoms and indications separately but we wish to emphasize that the same important presenting symptoms

*Read before the Association in annual session, Birmingham, April 20, 1937.

that demand study in the adult are also an indication for study when they are present in babies and children. Too much stress cannot be placed on a thorough rectal examination in babies and children, where symptoms of obstruction at the bladder neck are present, in order to rule out tumor.



Fig. 1. (Case 1)—H. K., female age 7, treated for pyelitis for four years. Diagnosis, stricture of the lower third of the right ureter, hydropyonephrosis with destruction, no function left.

### CYSTOSCOPY AND OTHER STUDIES IN INFANTS AND CHILDREN

Many physicians deny their young patients a modern urologic study on account of the disagreeable post-instrumental reactions. Other doctors object to cystoscopy on account of the necessity in many cases for anesthesia, and still others have an inhibitory fear about the procedure that they cannot explain satisfactorily to themselves or their patients. Many pediatricians feel that it is good practice to give a child gas to open an ear drum. They voice no objection to bronchoscopy. It is entirely proper to do a spinal puncture or other diagnostic surgical procedures, but when it comes to cystoscopy, ureteral catheterization, injection of the kidneys and ureters, it is entirely too formidable a procedure to subject infants and children to. Is this a reality, or a phobia handed down from our preconceived ideas of cystoscopy performed on the adult? Surely no physician properly informed would voice such an opinion.



Fig. 2. (Case 1)—Shows arrested development of the left kidney (no function).

(A) *Anesthesia*: It is true that in about 75% of children some form of anesthesia is required. We believe for ordinary routine use in cystoscopy and other cases where urologic instruments are used that ether administered by the open drop method is very satisfactory. Very light anesthesia is indicated and only very small quantities of ether are necessary. In older children who have stable nervous systems and who are accustomed to office treatment no general anesthetic is necessary. We advise and use surface anesthesia. At present we prefer 1% diothane. In our experience covering a series of about 150 to 200 babies and children, we have seen no bad results from anesthesia.

(B) *Tolerance Of Children To Cystosco-*

*py*: We think that urologists are unanimous in their opinion that babies and children tolerate cystoscopy and the routine urologic studies much better than do adults.

Merideth Campbell reports no reactions in 600 observation cystoscopies. In complete "work ups" of the upper urinary tract,



Fig. 3. (Case 2)—S. B., male, age 6, treated for pyuria and alkaline urine. Diagnosis, stricture of left ureter, hydropyonephrosis, right.

fever or other undesirable sequela occurs in 7.9%. In Campbell's series of 752 cases (complete studies) about one in every twelve children had reactions. Disagreeable reactions occur in children less than half as often as in adults. In our series, reactions occur very seldom and usually consist of local irritation of a transient nature. Sometimes there is an elevated temperature of about two degrees which disappears in twenty-four to forty-eight hours.

Our experience is that the doctor in the field and many pediatricians still look with disfavor on cystoscopy in children.

### OBSERVATION OF THE URINARY TRACT

Congenital anomalies of the urinary tract are now known to be common. The clinical or postmortem studies on large series of cases show the incidence of urinary anomalies in babies and children to be from 1.3% to 12%. These figures are of great importance since only one-half of these lesions have associated symptoms of sufficient importance to lead to a diagnosis. It must be remembered that it is possible to have urinary stasis without injection and pyuria.



Fig. 4. (Case 2)—Shows large megalo-ureter, stricture ureteral meatus (poor function).

It is of great interest and signally important for the diagnostician to know the frequent sites of obstruction in the urinary tract in babies and children. They are as follows:

1. Uretero-pelvic junction of the kidney,
2. Intramural portion of the ureter,
3. Bladder neck,
4. Urethra.

### CASE REPORTS

H. K., white, female, age 7, case No. 3131. Date examined Jan. 23, 1935. At the age of two the patient had malaise, anorexia, chills with high temperature, pyuria. Diagnosed pyelitis. The patient had no pain. Urotropin was given and for the next four years the patient had intermittent attacks of chills, fever and pyuria. Six months before coming to our clinic the attacks of pyuria, chills and fever became more severe and more frequent and at this time they were associated with a vesicular eruption. At this time she saw a pediatrician who advised tonsillectomy and adenectomy. No im-

provement. Two months ago prior to coming to us she had severe attacks of pain in the right loin, a urologist was called in and the patient cystoscoped.

*Examination*: External genitalia: Unremarkable.

Cystoscopy: Cystourethroscope passed into the bladder which showed subacute cystitis, grade II. Both ureteral openings were in normal position.



Fig. 5. (Case 3)—M. A. H., female, age 18 months. Diagnosed and treated for fourteen months for pyelitis. After seeing three pediatricians and the fourth doctor, cystoscoped. Diagnosis, double kidney, double ureter, left; dilatation of lower kidney pelvis with megalo-ureter.

Indigo carmine: Injected intravenously showed no appearance of the dye in twenty-three minutes from either ureteral opening.

Intravenous urography: Diodrast used, 13 cc. injected intravenously. Appearance of the pyelographic media in the right kidney in three minutes. X-ray plate shows a "turtle back" arrangement of the major and minor calices with partial rotation of the kidney and hydropyonephrosis. No pyelographic media was seen in the left kidney in thirty minutes.

The second day the child was re-cystoscoped. Both ureters were catheterized, the left with No. 5 and the right with No. 4.

Plain x-ray: Plain x-ray showed No. 4 catheter in the right kidney curled on itself twice. On the left side the tip of the catheter is stopped at the level of the second lumbar vertebra.

100 cc. of foul urine were withdrawn from the pelvis of the right kidney without difficulty. The capacity of the pelvis of the right kidney was 150 cc. Retrograde pyelogram done on two separate occasions verified the finding of the intravenous urologic study, namely, hydropyonephrosis with partial rotation of the right kidney.

Laboratory work: Catheterized bladder urine —white blood cells 12-15 (free) to the high power

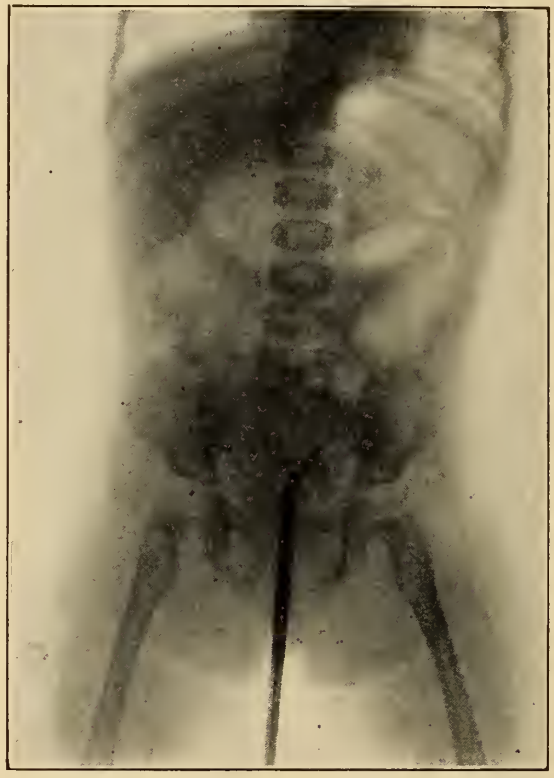


Fig. 6. (Case 3)—Retrograde ureteropyelogram showing dilatation of lower kidney pelvis and ureter.

field, small and large clumps, rod shaped bacteria xx.

Urine right kidney: Free white blood cells x, rod shaped bacteria xxxx.

Diagnosis: Congenital anomalies of kidneys—

(a) Hydropyonephrosis, right, partial rotation,

(b) Arrested development of the left kidney.

Note: Intermittently the child lapses into an acute or subacute uremic state. With drainage and lavage of right kidney we have been able to carry this patient along in a fairly comfortable condition.

S. B., white, male, age 6, case No. 3179. Date of examination Feb. 14, 1935. The child had no subjective symptoms, eats and sleeps well. Previous medical history irrelevant. Two months ago the boy began to have pyuria following a respiratory infection which was accompanied by chills and fever. Microscopically the urine resembled "thin buttermilk" and no drug given by the attending pediatrician would change the reaction from alka-

line to acid. The urine continuously remained alkaline.

*Examination*: The child was a well developed, normal looking boy. When asked to urinate he urinated a large, forceful, projectile stream and apparently emptied his bladder which was confirmed by catheter. He urinated such large quantities of urine at each voiding that it was decided to test out his bladder capacity. The bladder was filled with a solution of boric acid—600 cc. were injected through a catheter without pain and the boy promptly got off the table and voided 600 cc.

External genitalia: The boy has a long foreskin, otherwise unremarkable.

Abdomen: There is no tenderness or masses over the suprapubic region or anywhere in the abdomen. No tenderness or rigidity.

Cystogram: A cystogram was done which showed a bulged out area at the dome of the bladder which simulates a large diverticulum with no neck. (My explanation for this irregularity is that it was probably artefact from breathing.)

Bladder urine: Shows albumin, free pus cells abundant, many small and large pus cell clumps. Culture shows pure abundant growth of a gram negative bacillus.

The boy was cystoscoped October 10, 1935, and diagnosis made of dilatation of the bladder. No obstruction at the bladder neck. The right ureter was catheterized without difficulty. Great difficulty was encountered getting any kind of catheter in the left ureteral opening. Retrograde pyelogram showed hydropyonephrosis of the right side. Megalo-ureter on left, with no function of left kidney.

Differential urines: Right kidney—Sp. Gr. 1.006, free pus cells numerous, small and large clumps. Left kidney—Sp. Gr. 1.001, pus cells abundant. No tubercle bacilli found. Culture: Right kidney—Scanty growth of staphylococcus. Left kidney—Scanty growth of a gram negative bacillus and staphylococcus.

Diagnosis: Congenital anomalies of the urinary tract—

(a) Hydropyonephrosis, right,
(b) Stricture of the left urinary meatus with megalo-ureter and non-functioning kidney.

Note: Mandelic acid has given good results. Surgery will be considered later.

M. A. H., white female, age 18 months, date Oct. 12, 1932, premature baby (7½ mos.). The baby has had one or two ordinary colds. No other diseases. At the age of 4½ months she had what was diagnosed as pyelitis. She was treated by general practitioner and pediatrician. At the age of 10 months the second pediatrician suggested cystoscopy. After seeing the third pediatrician and the fourth doctor she was cystoscoped by me.

Cystoscopy: The bladder shows nothing remarkable. Number 4 catheters were used. On the left side one ureteral opening is seen above the other and No. 4 catheters passed up both ureters. Double kidney and double ureter demonstrated. The catheter passed normally to the right side.

Bladder urine: Free white blood cells, large clumps; rod shaped bacteria.

Differential kidney urines: Right—Sp. Gr. 1.009, an occasional white blood cell, rod shaped bacteria. Left—Sp. Gr. 1.011, albumin trace; free white blood cells abundant, many rod shaped bacilli. Upper left ureter: 1-3 white blood cells per high power field, renal epithelium. Lower left ureter: 8-10 white blood cells per high power field, epithelium, both caudate and renal in abundance.

Diagnosis: Congenital anomaly of the urinary tract—

(a) Double kidney and double ureter, left,
(b) Infection of the lower kidney, left.

Note: The kidney was drained and lavaged and the child lost sight of.

## CONCLUSIONS

(1) Indications for cystoscopy and other urologic investigations should be clearly tabulated.

(2) Time limit for intensive medical treatment for chronic pyuria should be agreed on by pediatrician and urologist.

(3) So-called cases of acute pyelitis with symptoms unabated after reasonable medical treatment should often be cystoscoped.

(4) The term pyelitis must be classified as pathologically incorrect and therefore unfortunate.

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**Skin Cancer**—It is my belief, after studying more than one thousand skin cancers of all histological types, that there is no difference between them in cellular radiosensitivity. The basal cell, adenoid cystic basal cell and squamous cell cancers all require about the same amount of radiation for complete destruction when the tumors are otherwise similar. Whatever difference of response is noted in the different types has been due to tumor characteristics other than those found in the cell itself. *Edwards, South. M. J., Oct.* '37.

# SIMPLE CYSTS OF THE OVARY*

## THEIR CLINICAL IMPORTANCE

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There is a general condition of the ovary that every surgeon who operates on the female pelvis encounters frequently. I refer to the commonly called "cystic ovary." For a number of years we have found the condition while operating for pelvic disease without knowing exactly what procedure to follow in handling it. The general rule has been to resect, excise, or puncture the cysts according to the amount of involvement. Occasionally a pelvis is opened that is essentially normal except for cystic ovaries. The purpose of this paper is to point out the symptomatic picture, surgical treatment, and the results obtained in such instances.

I do not propose to go into the embryology, physiology, histology, or pathology of these ovaries. I hope to show, through clinical manifestations, the importance of simple cysts. Since most of these cases have other pathology or abnormal anatomical conditions, and, in view of the fact that the results are entirely clinical observations, both preoperative and postoperative, we realize that there are many chances for error in the interpretations. However, clinically speaking, it seems clear that in some cases the cystic ovary is the only cause of the symptoms. Clinical observation, though, with all of its lack of accuracy and possible error, nevertheless is still our most direct contact with the patient.

A review of a few of the standard textbooks reveals that authors differ greatly when considering cystic ovaries and their clinical importance. Graves[1] says, "It is a mistake to suppose that small cystic degeneration of the ovaries causes pain." Bland and First[2] state that rarely do small follicular or retention cysts give rise to symptoms and still rarer do they call for treatment, although manifold surgical sins have been committed in their name. Graham[3] states they "seldom produce serious symptoms and are rarely harmful in other respects. Few operations in the realms of gynecological surgery have done more harm than the removal of cystic ovaries." Montgomery and Bland[4] say that "early stages of ovarian tumors produce no symptoms." Gardner[5] believes that such cysts are of little clinical importance. Today to remove such an ovary is considered unjustifiable radicalism and must be condemned. Boyd[6] says of follicular cysts: "As far as is known they give rise to no symptoms." H. C. Taylor, Jr.,[7] states that "direct surgical attack on the cystic ovary is rarely necessary." DeLee and Greenhill[8] say that small cystic degeneration of the ovaries produces characteristic symptoms, namely, menstrual disturbance, cramp-like pain and leucorrheal discharges. J. R. Goodall[9, 10] says that pain is frequently severe in the small cystic ovary of inflammatory origin. The pain of the ovary is generally a dull boring type becoming acute and stabbing only when the peritoneum or adjacent structures become involved. Treatment: At or near the menopause surgery offers the best chance for complete cure. Dudgeon,[11] MacCarty[12] and Chalfant,[13] in recent articles,

*Read before the Association in annual session, Birmingham, April 21, 1937.

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make the general statement that cystic ovaries have very little clinical importance and that surgery is seldom necessary. L. Kraul,[14] Mueller[15] and Berge[16] record, in current literature, that they found the cystic ovary causing definite symptoms and needing definite treatment.

These cystic ovaries vary from normal to three times normal size and contain multiple small cysts which are usually follicular, retention, or corpus luteum. No attempt is made in this paper to differentiate between the types of small cysts. The ovary might be of thin cystic lining surface, a heavy thick surface, or any variation between the two. The follicles are usually under tension, but I have made no attempt to isolate this point. Only macroscopic pathology is used in the differentiation and diagnosis.

A group of ninety-three patients were selected because their symptoms seemed to relate directly to the ovary, both preoperatively and postoperatively. All patients in this series had cystic ovaries that were diagnosed at the time of operation. Two symptoms were common to all ninety-three cases; namely, a boring type of pain in one or both sides, and an increase of pain at menstruation, of a bearing down type. Fifty-five cases had pain in the back; 53 had pain down the leg; 58 had regular menstruation; 23 had irregular menstruation; and 37 cases had to go to bed because of pain at the menstrual period.

Our treatment was the resection of the ovary, removing all cystic tissue if as much as one-sixth of the ovarian tissue could be left; removal of the entire ovary if the whole ovary was cystic; puncture of the cysts where only a few cysts were found. In all cases, where it was deemed advisable, above thirty-six years of age, we removed the entire ovary if it was cystic, both ovaries if both ovaries were cystic.

Postoperative results, which range from six years to four months, show:

1. Freedom from pain in 47 cases.
2. Unoperated ovaries with corresponding postoperative pain—12 cases.
3. Pain after operation that corresponded to the resected ovary—32 cases.
4. Pain after operation that corresponded to the removed ovary—15 cases.
5. Pain after operation believed to be directly due to the remaining ovarian tissue —23 cases. (This was arrived at by palpation of the ovary postoperatively and producing the symptoms complained of.)
6. Regularity of menstruation improved in 33 cases.
7. Menstruation unimproved in 17 cases.
8. Menstruation remained the same in 31 cases.
9. Menstruation absent in 12 cases.
10. The menstrual cycle was shorter and the flow more moderate in 60 cases. (This cycle varied from two days to two weeks shorter.)
11. Forty-one cases were apparently improved.
12. Five cases were apparently unimproved.

If a hypothetical case could be cited as typical from these ninety-three patients it would be as follows: There is a boring type of pain in one side, occasional aching in the other, which increases with exertion, and the history has extended over a period of several years. Menstruation has been regular. The flow was five days, heavy the first two days and lighter the last three. The boring type of pain became more severe two days before menstruation, and remained severe until one day after the flow started. The treatment was resection of the ovarian cysts. The patient became free of pains, except at menstruation time; and even then the pain was less severe than before the operation. The length of the menstrual period is now four days of heavy to moderate flow, and it comes five days earlier.

The cases roughly fall into five groups as follows:

The first group comprises those cases where the only pathology found at operation was cysts of the ovaries. There are five such cases. Each gave a history of pain in the lower abdomen, in the back, and down the leg.

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To demonstrate the symptoms, treatment and results the following cases are given as examples:

REPORT OF CASES

*Case* No. 915, age 32. Was operated on for gallstones. The appendix, tubes and uterus were normal. The left and right ovaries contained multiple small cysts. The cysts were punctured. Before operation the pain in the left side was dull, gnawing; and it extended into the back and left leg, irrespective of the gallbladder complaint. Menstruation occurred every four to six weeks and was painful in the left side. One year after operation the patient has practically no pains at menstruation and between periods she has no pain in the left side, back, or leg. Her menses are regular.

*Case* No. 1611 gave a history of five years standing. The pains were in both lower quadrants, lower back, and down the right leg. These pains became much worse at menstruation. There had been a continuous loss of strength accompanied by peculiar, hysterical, sinking spells. The patient was nearly an invalid. Menstruation had been regular and normal, but now was irregular, missing as much as three months. Pelvic examination revealed the ovaries easily palpable, definitely tender but otherwise negative. Operation was not deemed advisable. In the course of time this patient was seen by several doctors, including surgeons, general practitioners, and internists. No diagnosis was made. The question of operation for pain was discussed by each and all advised palliative measures. After two years of such treatment we eventually decided to explore the pelvis. Bilateral multiple cystic ovaries were found, along with a third degree retroversion. A Simpson suspension, left oophorectomy, and right one-half resection of the ovary were done. The main pain before the operation was in the left side. Four months after operation the patient had gained seventeen pounds, had menstruated three times and had no pain.

*Case* No. 1491, age 28, complained of pain in the lower abdomen, both sides, back and left leg for eleven years, which grew worse. There were attacks of very severe pain in the left side, from the costal margin to the hip, just before menstruation time. At operation the uterus was found retroverted and prolapsed into the cul de sac. The right ovary was three and one-half times the normal size, contained one large simple cyst and several small follicular cysts. The left ovary was normal in size, had numerous small cysts in it, and its surface was moderately thicker. In spite of the fact that the history definitely indicated the left, the right adnexa were amputated because of their more cystic nature, and the left ovary was resected one-half. The uterus was suspended. Beginning with the first month, postoperative, the left pain was nearly as severe as it was before the operation. The right improved. I have examined her twice since operation and produced the pain she complains of by pressing the left ovary between the examining fingers. Had the left ovary been amputated as the history indicated and the right ovary been resected, in spite of its more cystic pathology, I believe this patient would have been cured.

The other two cases were similar.

The second group contains those patients in whom the clinical diagnosis was appendicitis. It was decided to operate in each instance because the history showed recurrent attacks over a number of years. These cases had pains over McBurney's point and the area lower down, with or without nausea, the pain usually radiating into the right leg. The pain grew definitely worse at menstruation. The attacks lasted from a few days to one week. The white blood counts ranged from six to thirteen thousand, with 48% to 78% polymorphonuclear leucocytes. The physical findings varied from definite acute pains to general soreness in the right side. Many of these cases were virginal and vaginal examinations could not be made, but in the cases where this was possible, the examination was not of distinct aid. All cases were selected postoperatively so the cystic diagnosis was exact. There were twenty-nine such cases.

The appendix in these cases was macroscopically of the subacute to chronic type, leaving in the mind of the surgeon some question as to whether it could cause the symptoms. If the appendix was acute enough to cause the symptoms, the patient was not included in this group. No cases with adhesions, varicosities, peritoneal irritation, or any other obvious causative agent for pain was included—thus leaving this group, as far as clinical observation is concerned, to have its pain due to either the appendix or the cystic ovary. The urine in all cases was negative.

Postoperatively, six cases have pain in the abdomen more or less constantly. Two of these were free of pain four months following operation. Two were free of pain eight months or more, and two were free of pain one year or more. The pain is now gradually returning, which suggests that the cysts are reforming. Twenty-one of the twenty-nine patients still have menstrual pains of varying degrees. Nineteen of the twenty-one are definitely better in this respect. One is worse and one is unchanged. Eight have no pain. Seven of the cases had the affected ovaries removed. Of this number four are cured of symptoms. Three are improved. Twenty-two of the cases had ovarian resections, of which eleven are

improved, ten are cured and one unimproved, one year or more after operation.

Six cases had pain in the left side and each of the six had ovarian cysts in the left side. Two of these ovaries were either resected or punctured and freed of symptoms. Four could not be resected due to the position of the incision. Three of the four cases have some postoperative discomfort in the left side which is worse at menstruation time.

One of the patients in this group was fourteen years of age. She had almost typical appendix symptoms and physical findings one week before each menstrual period. The only reason that an appendectomy was not done on a previous occasion was because the white blood count was less than 10,000 and the polymorphonuclear leucocytes less than 50% each time. At the time of operation the attacks had grown so severe that we were sufficiently convinced of appendicitis to operate in spite of some questionable points. At operation the appendix was very innocent looking. The right ovary contained many follicular cysts and one small corpus luteum cyst. There was no other pathology demonstrable. The appendix was removed, and the ovary resected of all cysts. It was remarked at the operation that the ovary should be removed were it not for the age of the patient. Since operation this patient has had six months of freedom from pain and symptoms. For the last five months she has been gradually returning to her original complaint. I believe the ovarian cysts are reforming.

We operated on three patients with ovarian cysts who had been operated on for appendicitis by other surgeons. Each gave a history of pain in the back of several years standing, lower abdomen and down the right leg. The menstruation pain was severe. As far as I could learn these were the same pains that the patients had complained of before their original appendectomies. We found cystic ovaries to correspond with the pains at their sites of operation. In one of these patients both ovaries were resected. The postoperative results were excellent for one year, after which the pain gradually returned. On examination these pains could be produced by palpating the ovaries. In the second case one ovary was removed and the other resected. Four months after operation she is pain free for the first time in eleven years.

There were five cases in which the appendix was definitely pathologic and acute. These are included because there was in each case, in addition to the acute history, a history of long standing, recurrent pains in the right side—occasionally the left—which the patient easily distinguished from the acute attack. At operation follicular cysts of the ovaries were found. In one of these cases (No. 61) the patient gave a history of boring pain in the left side which was not related to the acute pain in the right side. At operation the acute appendix was removed, the right ovary was found to be normal and a simple cyst and several small follicular cysts were found in the left ovary. The ovary was resected one-half; all cysts were removed. Four years later the patient states that the boring pain in the left, as well as the acute pain in the right, has never bothered her since the operation. Her menstruation has been more regular, it is accompanied with very little pain, and is of shorter duration. The second of these cases (No. 706) had a pain down the right leg, in the back and in the right side for several months. There was an attack of one day's duration coming on suddenly with nausea and localized pain over McBurney's point. At operation a very acute appendix and the right ovary, almost completely cystic, were removed. Since the operation the symptoms have cleared. The other three patients gave similar type histories with the same results. In each of the five cases the menstrual cycle has been shorter, and the flow is less than before the operation.

The third group is made up of those patients who were operated on for general pelvic complaints such as prolapse, cervicitis, adhesions, and repair work, and in whom at operation cystic ovaries were found. There are thirty-one cases in this series. In each instance the ovaries were resected, and the other pathologic condition operated upon also. The ovaries presented a problem here simply because the surgeon was looking at them. The history of these cases is essentially the same. Each had lower abdominal pains of a boring type on both sides and pains in the back and legs which suggested that cystic ovaries might be causing them.

Their postoperative results cannot be limited to the ovary alone but seem to demonstrate the fact that the ovaries were the cause of a part of the complaint. No attempt is made to tabulate all the different operations that went along with the ovaries as no claim is made that the ovaries alone were the chief cause of the symptoms. From the results of our cases it is fair to assume that if no ovarian surgery had been done, as many suggest, the results would not have been as gratifying. Results show: Cures 16, improved 13, unimproved 2.

The fourth group consists of cases with a pathologic condition on one side of the pelvis demanding immediate attention; and on the other a chronic history with cystic ovary, which apparently had no relation to the condition causing the operation. There are eleven cases in this group. The diagnosis that led to the operation consisted of twisted pedicle cyst with gangrene in three cases, fibroids of the uterus in four cases, large cyst of the ovary in three cases, and ectopic gestation in one case. Each of these patients gave a history of a boring pain in the non-surgical side that existed before the operative condition developed. This boring pain was sometimes in the back and sometimes down the leg. It was much worse at menstrual time, gradually growing worse, but not severe enough to require a doctor. In none of these cases was any pathology, other than the multiple follicular cysts or corpus luteum cysts, found in the non-operative side to account for the pain history on its side. A typical patient is No. 313 who is twenty-eight years old, and married. The chief complaint was a mass in the abdomen. For six months the mass had been growing in the right side causing pressure symptoms. For several years she had had aching in both sides, more definitely on the left, of a boring type, rarely extending into the back. Apparently there was no connection with the mass. At operation a large multilocular cyst was found on the right to account for the mass and the pains of the right side. On the left an ovary one and one-half times normal size was found with many small follicular cysts; the surface was fibrotic and tough. The right adnexa were removed, the left ovarian cysts were punctured, the appendix was removed, and a Simpson suspension done. Four years later the patient was feeling well, and her right side never bothers her. Her left side pains her just as it did before the operation. On physical examination the left ovary is easily palpable, tender to pressure, and no other pathology is demonstrable. The other ten cases in this group are of similar type. Four of them were old enough for a bilateral salpingo-oophorectomy, which was done. All four have complete cures with no pain; the other six had to have at least a part of the unaffected ovary left. These have some pain in that side. This group seems to indicate that cystic ovaries do cause pain clinically.

The fifth group consists of those patients who had old chronic pelvic infections, mostly neisserian, that are picked because at operation one or both ovaries presented multiple follicular cysts. There are eleven cases in this series. In their histories they gave symptoms of boring pains in either side that increased at menstruation. This seems to suggest a relation between these symptoms and cystic ovaries. All of these cases had pains for a long time prior to their pelvic infection. Therefore it is believed that in order to cure such cases their cystic ovaries must be taken into account. One case of interest was No. 1406 who, "all of her life," complained of pain in her sides, especially at menstruation. Seven years ago she had a general pelvic peritonitis with the usual symptoms. After five years time she was operated on. Apparently a right salpingo-oophorectomy, suspension and appendectomy were done. She was no better following this operation. For eighteen months she has been under our care, and has a boring type of pain in the left side. Palliative treatment of all kinds, including the Elliot, was found unsuccessful. Operation was advised and the pathology found was a left cystic ovary, fibrotic tube, and many old thin adhesions from the sigmoid and pelvic peritoneum to the adnexa and uterus. The right adnexa and appendix had been removed. The remaining left adnexa were removed and a supracervical hysterectomy was done. It is now nine months postoperative and the patient has no abdominal pain. It is difficult for me to believe that the adhesions, which were thin, chronic, and inactive, caused all of this patient's symptoms.

In my own experience the clinical follow-up of many of these cases indicates that had

the ovaries been properly treated at the time of operation the difference between a cured and an ailing patient would be the result. At present we have operated on two cases that had had previous operations without symptomatic improvement which I believe could have been cured had the ovaries been properly treated. We have at this time two of our operative cases facing, at the end of four years, another major operation which I believe could have been avoided had we done more definite surgical treatment at the time of the first operation. As a general statement, I have arrived at the conclusion that one or both ovaries under the symptomatic evidence, as stated above, might readily be sacrificed in order to cure a patient at surgery. In younger patients the problem is more difficult. I feel that under the symptomatic set-up the resection is advisable and occasionally oophorectomies should be done. However, any oophorectomy in a young person should be done only after very careful consideration and after every possible means of avoiding it has been used. I doubt that the puncture of follicles is of any value. In the first place the follicular cysts are deep in the ovarian tissue as well as on the surface and cannot be punctured. In the second place the procedure is temporary at best. It is contended by some authors that the cysts in ovaries are caused primarily by a focus of infection. In a number of the above cases a definite focus has not been demonstrated. This, of course, does not exclude the possibility. However, this paper is written from the standpoint of the surgeon who is looking at the ovary from an open abdomen and must decide what to do to follicular cysts. Granted that the control of foci may control the cysts, if the surgeon does not find a focus, after he closes the abdomen it is a little hard on the patient to open the pelvis again in order to work on the ovaries. The question is, what am I to do with the ovary at which I am now looking?

## CONCLUSIONS

1. Follicular, luteum and retention cysts may, under certain conditions, cause definite physical symptoms.

2. A group of clinical symptoms are herein suggested for multiple cystic ovaries.

3. The menstrual cycle may be influenced under certain conditions by multiple cystic ovaries.

4. Subacute or chronic appendicitis and salpingitis may easily be confused with or accompany the clinical picture of right ovarian cysts.

5. Oophorectomy, ovarian resection, or puncture of follicular cysts is often indicated as a surgical procedure.

6. A resected ovary may stay symptom-free until more cysts are developed, then resume the former symptoms.

7. Recognition of, or the failure to recognize, the clinical importance of multiple follicular, luteum or retention cysts of the ovary may result in the success or failure of a major surgical procedure as far as the clinical results to the patient are concerned.

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# THE DIETITIAN*

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In thinking through the material for this paper, it seemed wise to start with a definition of terms. What is a dietitian? My first thought was toward the dictionary, as is usual when wanting definitions. Webster's latest edition was not too helpful. First came *dietist*—one skilled in dietetics; a dietician. The next line gave *dietitian*—one who is versed in, or practices any branch of dietetics, as a therapeutic or public health dietitian. The words, "any branch of dietetics," are not in agreement with my next source of information—Dorland's Medical Dictionary—which defines a dietitian as one who is skilled in the scientific use of diet in disease. Leaving the dictionaries, I look in vain for governmental boards or agencies that might frame an adequate definition. We have no state examinations to give status to the profession—we find no registration lists of those licensed to practice. We do find a recognition, however, in the American College of Surgeons' Manual of Hospital Standardization (1933). This publication states: "Every approved hospital requires a well organized dietary department under the supervision and direction of a competent graduate

*Read before the Association in annual session, Birmingham, April 21, 1937.

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dietitian." The publication further states that the training of the dietitian shall "conform to standards approved by the American Dietetic Association." This last statement brings us nearer a type of definition.

The membership qualifications, then, of the professional association that represents some 3,500 dietitians, appear to give us the most descriptive meaning of the word "dietitian" that we can find. These qualifications list certain academic requirements; organic, inorganic and physiological chemistry, bacteriology and physiology, and diet in disease are among some of the subjects required. The work must be done in an accredited college or university. There must be postgraduate institutional experience under supervision and the endorsement of a membership committee to complete the requirements.

That there is lack of exactness in our understanding of the term dietitian is not surprising. The dietitian is relatively a newcomer in the professional world. She is among the youngest, in terms of group membership, in the hospital family. Her professional organization, the American Dietetic Association, is only twenty years old. In a few hospitals she is yet to make her appearance; in many others, she is a major officer, head of her department, and responsible to the chief executive only.

The dietitian probably entered the hospital first as a teacher. With the development of the science of nutrition, and with the recognition on the part of the medical profession of the part food plays in the treatment of the sick, came the need for teaching the nurses what was then called "dietetics." The nurse was first taught "invalid cookery"; she was taught how to set up a tray; she was taught some nutrition and what little was known about diet and disease. To the teaching work was soon added the responsibility for the "special diet kitchen"—a kitchen given over to the preparation of special dishes for the prescribed diets.

Nutrition research continued. The physiological chemist, the biochemist, and the physician added to our knowledge of the problem. The vitamins were identified. We began to see not only the value of food as it affected the treatment of the ill person, but also the value of an adequate diet in maintaining a state of positive health. If the dietitian was of service as a teacher, and in the special diet kitchen, why could she not be of equal service to the large group of hospital patients and personnel who needed *normal* dietary service? The natural development, then, was to gradually give her the responsibility for planning the menus for *all* the hospital family, not only those on the so-called "special" diets; to give her the authority to direct the management of the main kitchen as well as the diet kitchen. As her training became more adequate, and as she showed the ability to carry responsibility, she grew in professional status, until now in many hospitals she is in complete charge of all food service. From the time the food enters the hospital, until it is served to the patient, it is under the direct supervision of the dietary department.

Thus we see today the dietitian in the hospital holding a three-fold position. She is an administrator, she is a teacher, she is a scientific worker. In our medical centers, and large hospitals, we see members of the dietary staff specializing in one of these three aspects of hospital nutrition work. And so we have administrative dietitians and therapeutic dietitians in some hospitals. In our smaller hospitals we see one or two dietitians handling all three phases of the work.

What can the hospital rightfully expect of the dietitian? It can rightfully expect its dietitian to interpret and carry out the physicians' orders for dietary service to the patient with exactness, and with a fair degree of satisfaction to the patient. Her scientifically sound training in nutrition, foods and cookery will make this possible. It can expect her to provide nutritionally adequate meals to the staff and personnel—again with a fair degree of satisfaction to a clientele notoriously critical. As an administrator, it can rightfully expect her to be a good manager, which, in turn, means that she will spend her departmental money wisely, will keep adequate business and technical records, will maintain a well trained group of workers, have high standards of work, and keep her department clean, orderly, and well-organized at all times. As a teacher, it can expect her to be capable of teaching student nurses if the hospital maintains a training school, and of teaching the patients to improve their dietary habits.

The hospital can expect its dietitian to be professionally minded in her relationship with other departments. In addition to having the training and skill essential to her position, she must be a person physically and emotionally able to maintain a high level of work day in and day out; she must be accurate, have a capacity for responsibility, and must be her own "self-starter." Lastly, it seems to me, she must have what, for lack of a better word, I call "food sense." And above all, she must have a sense of humor.

If the hospital asks and gets all of this from the dietitian, what should it give her in return? Status in the hosptal organization commensurate with her responsibility; an adequate salary; the opportunity to develop her department to the fullest, within the financial limits of the institution; the authority to work with the purchasing officer (if she herself does not do the buying) in matters of grade, specifications, and amounts of all food and equipment bought for her department; the authority to hire her own employees, or, in the larger institution, the authority to work with the personnel department on matters concerning her department. Less than this the hospital cannot give to a department head.

We have talked of the hospital dietitian. She is, of course, not the only dietitian in the field. While membership records in the American Dietetic Association show 2,300 hospital dietitians out of a total of 3,520, there are many other important fields of work for the well-trained person. Advancement in the science of nutrition, and especially our knowledge of the importance of the nutrition factor in maintaining health, has brought the dietitian to the college campus. The properly housed and properly fed student is apt to be a better student than the one improperly housed and fed. And, interestingly enough, it has been found that the amount of money available for student food service is not always as important as the availability of trained management for student food service. Again, the dietitian as an administrator has shown her worth. The Conference on College Hygiene, held in Washington in December 1936, and attended by many college physicians, agreed that "the feeding of students should be in charge of trained dietitians, and that the services of the dietitian as a consultant should also be available when needed by any students living in fraternities, cooperative houses, or unorganized groups, as well as for conferences with students who need help on special diets."[1] We find the dietitian in the public school lunch room; here she is not only an administrator of a food unit, but also contributes to the health education program in the school. The dietitian is in the outpatient clinic and in public health work. She is doing nutrition research. She is available as a consultant. She is proving her value in the professional world. Her field of work is expanding; standards of training are being continually raised. She is rendering a social service of no small order.

The dietitian is grateful for the support and encouragement she has had from the members of the medical profession from the beginning. She hopes and believes that this support will continue.

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## PAGET'S DISEASE*

### (OSTEITIS DEFORMANS)

By
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In view of the fact that the diagnosis of osteitis deformans or Paget's disease is so frequently overlooked in its earlier stages; and since in the more recent medical literature, there is such a growing interest in its etiology; it does not appear out of order at this time to review this condition and present a case for your observation.

The name osteitis deformans was given to this rare and interesting disease by Sir James Paget in 1877 because the bones of his patients showed such a gross thickening, elongation, and deformity; but this peculiar deformity which he has so well described applies only to the advanced polyostotic form. Since the use of x-ray, it has been found that the disease is not so rare; it exists long before the deformity occurs; and may be recognized in one bone only. For this reason, many who are interested in its cause and occurrence prefer to use the name "Paget's disease" rather than "ostei-

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*Read before the Association in annual session, Birmingham, April 21, 1937.

tis deformans" because this would permit the inclusion under one name of all degrees of bone involvement. Cases of this condition have been reported from 14 different countries but is more prevalent in England, France, and the United States. It is a disease of adult life, usually occurring in patients over 40 years of age although a few cases have been reported in younger individuals.



Fig. 1
Showing general appearance of Paget's disease.

SYMPTOMS

The course of this disease is usually insiduous. The patients rarely apply for medical aid until many years after the onset and many cases have no signs or symptoms related to the disease, it being discovered incidentally during roentgen examination of the gastro-intestinal tract, sinuses, genito-urinary tract, or in case of fracture.

The most common manifestation is pain in the region of bone involvement, usually in the lower back, legs, and hips. This pain has been described as a generalized dull ache which may be constant or periodic; worse after exercise; relieved by rest; and associated with varying degrees of stiffness in the joints; in fact, they are such pains as might accompany any bone or joint condition and may appear many months before any gross lesion can be detected. Complaints have been recorded as "rheumatic," "neuralgic," and even "due to old age." Bone tenderness has been reported but this is rare. Deformity occurs late in the disease and the bones in the lower limbs are usually the first to be affected. The softened bones of the legs, having to bear the weight of the body, become bent; the femora laterally, the tibiae anteriorly, giving the patient a bowlegged appearance to which is added a characteristic twisting. Many patients have obvious enlargement of the skull with a history of varying degrees of headache.

ROENTGENOGRAPHIC FINDINGS

It is very difficult to describe the roentgenologic findings in Paget's disease and no words are as impressive and convincing as the film itself. A good description of the characteristic and well known features are given by Moore of St. Louis who says that these findings may consist of changes in texture, size, form, and outline of the involved bone; of these the most significant is the increase in thickness or bulk. Texturally there is, early, a rarefied condition in the cortex of long bones simulating at times cystic formation. For the homogeneous smooth textured compact layer, there is substituted a wide-meshed coarsely reticulated structure in the spaces of which there is a softer tissue relatively deficient in calcium. Later the bone takes on a dense irregular patchy appearance showing two definite processes; that of rarefaction and

condensation, the former corresponding to the softening or primary stage, and the latter to the reparative or secondary stage. The irregular thickened appearance of the skull known as "cotton wool" changes is characteristic of the advanced form.

Early lesions in long bones are almost invariably confined to one end of the shaft. Both ends may eventually be involved and in the course of time converge toward the midshaft. In Kasabach's series different bones or even different areas of the same bone presented varied lesions ranging from local or regional osteoporosis with



Fig. 2
Note coarse trabeculations in both femurs and bones of pelvis.

coarsened trabeculations to dense osteosclerosis. Paget's disease may become arrested at any stage so therefore it would appear very unwise to draw from a single roentgenogram any conclusion as to the activity of bone changes or predict the course of the disease.

### BIOCHEMICAL CONSIDERATIONS

The constituents of the blood which interest us most in Paget's disease are calcium, inorganic phosphorus, and phosphatase; in other words, those primarily concerned with bone metabolism. The more recent studies show that serum calcium and inorganic phosphorus are within normal limits in uncomplicated cases; but it is well known that the enzyme, phosphatase, is markedly increased. It must be kept in mind, however, that the phosphatase activity is not specific for Paget's disease but may be found in several conditions where there is an increase in processes leading to bone formation. Gutman, from an analysis in over 70 cases, favors the view that blood phosphatase activity is roughly proportionate to the extensiveness and activity of the Paget lesions and is therefore of some value in prognosis.

### COMPLICATIONS

A review of the literature discloses that sarcoma is a relatively frequent complication of Paget's disease. Coley and Sharp studied 71 cases of osteogenic sarcoma over 50 years of age which were collected from



Fig. 3
"Cotton wool" changes characteristic of Paget's disease in skull.

Memorial Hospital and the Bone Sarcoma Registry. In these 71 cases 28% had both Paget's disease and osteogenic sarcoma and in no instance was the sarcoma found to affect a portion of the skeleton free from roentgenographic evidence of Paget's.

Bird reports the occurrence in approximately 11% of his cases collected from the Boston hospitals and those observed by him were fibrosarcoma. These sarcomatous complications are reported to occur only in advanced cases of Paget's disease and according to Jaffe the histologic picture differs from that usually found in uncomplicated osteogenic sarcoma. This tendency to sarcomatous complication puts Paget's disease in a different class from the other dystrophic bone diseases.

Kasabach and Gutman reported that out of 47 cases of osteoporosis circumscripta of

the skull, 32 were associated with Paget's disease elsewhere in the skeleton. Their conclusion was that osteoporosis circumscripta of the skull is not an obligatory early phase of Paget's but a precursor or an atypical form of this condition.

Pathological fractures frequently occur following slight trauma. Some heal readily with abundant callus and others have been reported to heal completely but more slowly than normally. Jaffe interprets this callus as periosteal activity and thinks it is an exaggeration of a process normally present in many cases of Paget's. As the new callus goes through the various stages of calcification and ossification, it becomes a part of the pathological process and shows roentgen signs of Paget's disease.

Cases showing deafness, optic atrophy, and neurological symptoms have been recorded in the literature.

### ETIOLOGY

The etiology of Paget's disease is still unknown. Paget himself believed the disease one of inflammatory origin. Jefferson suggested in 1915 a thyro-parathyroid disturbance.

Cone thinks the condition is the result of chronic cardiovascular disease caused by long continued intermittent high and low pressure coupled with changes in organs of internal secretion so commonly accompanying cardiovascular disease. Along with this idea, the frequent association of arteriosclerosis with Paget's disease has suggested that sclerosis of the nutrient arteries may be a factor in causation but pathologists have concluded that obliteration of the nutrient arteries presents an entirely different microscopic lesion from that found in Paget's disease.

Berman supports a theory that it is a disease representing a disturbance in bone metabolism involving an imbalance between the parathyroid glands and the adrenals, there being an excessive function of the former and a deficient function of the latter. He claims that in 16 cases out of 18, there was definite improvement after treatment with adrenal cortex hormone. It seems that if the parathyroids or other ductless glands are primarily at fault, it would be difficult to explain cases in which only one bone was involved for as long a period as 10 years; rather one would expect a constant generalized involvement such as occurs in generalized osteitis fibrosa cystica associated with hyperparathyroidism.

It is the belief of Moehlig and his associates that the pituitary and parathyroid glands are the important factors in bone development and they attempted to produce bone lesions such as occur in Paget's dis-

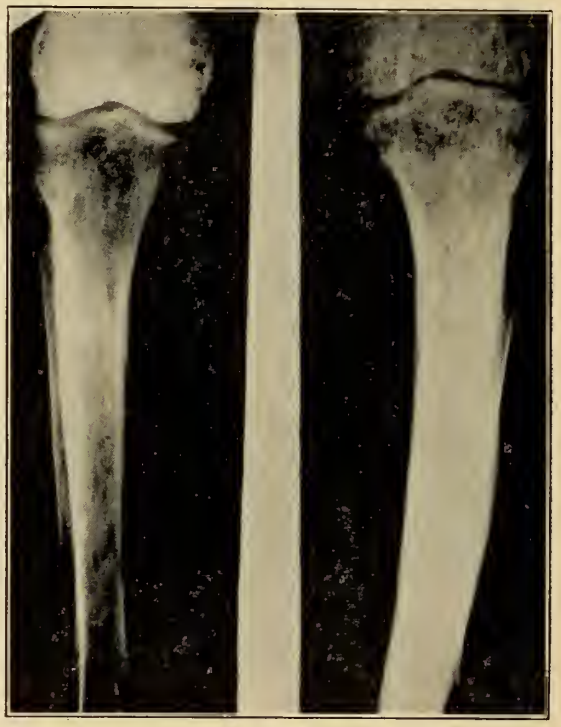


Fig. 4
Note changes in tibiae.

ease in dogs by injecting anterior pituitary extract and parathyroid extract. The bones in these dogs showed a massive replacement of bone marrow by metastatic calcium. They believe that from previous clinical studies which they have made that a constitutional background is necessary for the production of Paget's; also they found that a high percentage of patients suffering from Paget's have a constitutional background of familial diabetes, obesity, and tallness. They believe that these conditions are of significance in that they suggest a constitutional factor as providing an etiologic background for the development of Paget's. They placed their patients on a measured carbohydrate diet (175-200 gm.) and insulin (10-15 units) three times a day.

There was a general improvement but no definite conclusions could be drawn without further and longer observations. In a later report the same authors stress the close association of carbohydrate metabolism and certain bone diseases such as Paget's and osteoporosis. It was suggested in this report that the pituitary gland may be a primary factor in the production of these diseases and the parathyroids probably secondarily involved.

Syphilis as a cause of this disease has had a strong support from various French authors and when limited to a single bone can be strikingly similar; but the unyielding progress of Paget's disease after antiluetic treatment and the absence of other syphilitic manifestations is against syphilis as its origin.

The prevailing opinion as to etiology appears to be that Paget's disease is the result of some local disturbance in bone metabolism, the immediate cause of which is still unknown; and the preponderance of pathological, clinical and biochemical evidence reported by various authors indicates that it is not a generalized systemic disease infectious or endocrine in origin.

### DIFFERENTIAL DIAGNOSIS

Even in single early lesions and with no clinical manifestations, the roentgenologic picture of Paget's disease is so characteristic that there is usually little question as to the diagnosis; although a few conditions present certain features similar to this disease and must be considered along with it.

The radiologic manifestations of osteoplastic skeletal metastases secondary to carcinoma of the prostate resemble the sclerotic stage of Paget's but, as has been pointed out by Sutherland, Paget's disease shows an increase in size and thickness of the bone which is not found in carcinoma; also, due to excessive fibrous tissue, there are coarse diffuse striations in Paget's disease which are not found in carcinoma; and further the skull changes when present in carcinoma do not show the typical "cotton wool" appearance so characteristic of Paget's.

Occasionally there is a question as to its differentiation from generalized osteitis fibrosa cystica or hyperparathyroidism; particularly in the second or moderately advanced stage of the latter. Paget's has even been claimed by some to be a manifestation of hyperparathyroidism. Some of the features which should differentiate these two diseases are as follows: In Paget's disease the lesions are confined to one or several bones, the uninvolved bones being normal, whereas, in hyperparathyroidism, the entire skeletal system is affected. The coarse striated appearance or sclerosis with cortical thickening and the characteristic "cotton wool" enlargement of the skull found in Paget's readily distinguishes it from the osteoporosis, cortical thinning, and the ground glass translucency of the skull in hyperparathyroidism. The blood phosphatase activity is greatly elevated in both diseases but to a greater extent in Paget's.

The proliferative luetic periostitis may be mentioned in the differential diagnosis but the roentgenologic features are so different that little trouble is encountered in making the distinction.

### CONCLUSIONS

The roentgenologic features of an advanced case of Paget's disease have been presented.

A review of the literature shows an increasing interest in the etiology of Paget's disease and although a definite conclusion cannot be drawn, there appears to be a tendency to classify it as the result of some local disturbance in bone metabolism.

The vagueness of the symptoms in the early stages frequently causes this condition to be overlooked; and since the diagnosis is based almost entirely on the roentgenologic examination, this should never be omitted in obscure cases.

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### DISCUSSION

*Dr. O. R. Troie (Fairfield)*—Dr. Carter's paper has so thoroughly covered the subject of Paget's disease that there is but little left to be said. Her opening sentence, that Paget's is so frequently overlooked in its earlier stages, made me wonder how many cases I had overlooked since becoming radiographically inquisitive some 12 years ago, as I am unable to find any case of Paget's disease in my files and recall contact with only one case, a relative treated for fibrosarcoma of the right parietal bone by Curtis Burnham at the Howard Kelly Clinic. This patient showed an involvement of the right parietal and frontal bones only. The diagnosis of sarcoma complicating Paget's disease was made at the Clinic when the patient sought treatment for a tumor of the skull following a severe blow on the exact area subsequently involved

by the sarcoma. This points to the possibility of sarcoma in this case at least being due to trauma of the bone already affected by a latent or quiescent Paget's disease. The patient was 69 years old and otherwise in perfect health.

I am sure that the diagnosis of a typical, advanced, text-book case of Paget's disease would offer no great difficulty to the roentgenologist. Neither would it offer any difficulty to the observant general practitioner of today, or several decades ago for that matter, even without the aid of x-ray plates. But unfortunately most text-book cases are in the text-books and not in the busy clinic.

Urban Maes in a diagnostic clinic held in 1932 presented a case of Paget's disease for the sole purpose of emphasizing the value of clinical observation and deduction. This case was diagnosed Paget's disease by Dr. Cutting from the simple statement of the patient that he was unable to wear his old hat—in other words, his head was getting too big for his hat, a rather common occurrence, but unfortunately not common in Paget's disease as only 13 out of 116 showed this sign early in Gutman and Kasabach's collection. These same investigators, in the American Journal of Medical Sciences for March 1936, show a table of initial symptoms and major subsequent symptoms based on a study of 116 cases. The initial symptom, pain in the back, hips and extremities, was found in 37 out of 116. Then there were 27 cases without symptoms. That makes 64 cases out of 116 (over half) that have either no symptoms or symptoms that are so common that they are almost universal.

It is obviously impossible to make a thorough radiographic study of every patient that has a "misery" in his back, hips or legs, for economic reasons if no other, and if you did you would probably find very few early cases. This makes Paget's disease one of those things that is overlooked occasionally.

There is a difference of opinion among equally competent observers on nearly every phase of this disease. As to the question of spontaneous or minimal trauma fractures: Hallerman states that he has never seen a case of spontaneous fracture in 70 autopsies of cases of Paget's disease. Naville found 25 fractures in 170 cases. Ewald believes that fractures are uncommon. He thinks that the bone is rendered most resistant to trauma by reason of its modified structure. Donati is of the same opinion. Others believe that there is a greater fragility of the diseased bone in Paget's disease and that it therefore fractures more easily than normal bone. These, among others, are Oberzimmer, Krass, Smith and Looser. Love believes spontaneous fracture to be an uncommon complication in the absence of myelomatosis.

Dr. Carter's point, brought out under etiology, that, if the endocrines were a factor it would be difficult to explain cases in which only one bone was involved for a long period of time instead of a progressive generalized involvement, brings up the fact that this state of affairs is duplicated in other malacic bone diseases, e. g., generalized osteitis fibrosa cystica and isolated osteitis fibrosa cystica. These may bear the same relationship to each other that an isolated or monostotic area and a more or less generalized Paget's do. This still does not rule out the endocrine factor, as I think it has been established that at least generalized osteitis fibrosa cystica is synonymous with hyperparathyroidism. Syphilis has still not been definitely ruled out at least as an associated etiologic factor, for syphilis is as well or better known for its production of vascular damage as for any other of its manifestations. The mere fact that Paget's does not respond to adequate antiluetic treatment is no reason for eliminating lues entirely from the list of suspects, for the reason that the vascular changes produced by late syphilis could have initiated processes in the bone structure that, it is conceivable, could carry on independently once started, even on removal of the lues. It is also well known that many late manifestations of syphilis do not respond to antiluetic treatment any way, and if Paget's is due to cardiovascular changes they would in all probability be the changes generally found in tertiary syphilis. So this factor is still not disposed of, especially in view of the fact that the proponent of this theory, Sydney M. Cone, bases his belief on extensive clinical observation combined with the pathological findings in more than 900 autopsies.

The investigators of Paget's disease, it seems to me, are in a position similar to that of "The Three Blind Men and the Elephant."

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## "THE OLD SCHOOL AND THE NEW"*

By
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I find myself at a loss for words to express my appreciation of your kindness in inviting me to speak in this historic city under the auspices of the society of which the forerunners were those eminent men who founded the Medical College of Alabama in 1859. In the hall of our School of Medicine at the University hangs a fine portrait of Dr. Josiah Clark Nott, painted by Mr. E. M. Mader and presented by Mr. James Van Antwerp, both your fellow townsmen. At its unveiling in 1929, a former professor in the Mobile faculty, Dr. Alfred E. Maumenee, read an interesting paper on the history and development of the Mobile school. Dr. E. V. Caldwell, one of your honored alumni, at present Chairman of the State Board of Censors, presided as toastmaster at the dinner which followed. On that occasion, Dr. W. D. Partlow, Dr. V. L. Ashcraft, Dr. Henry Green, Dr. Gilbert Douglas, Dr. James H. Somerville, Dr. A. L. Harlan, Dr. H. W. Stephenson, Dr. Joseph L. Reynolds, Dr. Matthew B. Cameron, Dr. George A. Moore, Dr. John A. Lanford, Dr. I. C. Bates, Dr. J. D. Dowling, Dr. William M. Salter and Dr. W. A. Stanley, all Mobile graduates, presented sketches of and toasts to the memory of Professor Nott, Professor William H. Anderson, the first Dean at Mobile, Dean George A. Ketchum, Dean Rhett Goode, Dean Tucker H. Frazer, and Professors Caleb Toxey, Garonwy Owen, T. S. Scales, W. B. Pape, J. F. Heustis, W. H. Sanders, W. R. Jackson, Jerome Cochran, H. A. Moody, E. P. Gaines, and J. F. Harrison. All of that illustrious first faculty have long lived in memories only and some of their loyal pupils, who paid tribute to them in 1929, have likewise gone to join their preceptors.

It has been my good fortune to have had something to do with the effort to record and keep fresh for oncoming generations the direct descent of medical education in Alabama today from its beginnings in 1859 at Mobile. We have nearly complete the series of annual bulletins and registers of the old school. They constitute, so far as I know, the only existing official record. We are preserving them carefully in a fireproof vault. On the walls of the Dean's office today hang large portraits of Deans Anderson and Goode, presented by members of their families. Over my own desk hang portraits of Cochran and Sanders and Welch. It was largely through the influence of Doctor Welch that I came to Alabama and I shall never forget a three-hour breakfast conference with him in Chicago in the spring of 1928, in which he gave me much of the background of medicine in Alabama and inspired me with his hopes and plans for the development of medical education and public health hand in hand for the future welfare of his state. A member of the Council on Medical Education and Hospitals of the American Medical Association and a renowned State Health Officer, Dr. Welch made me feel that I wanted to make Alabama my state, and the nine years I have spent here made me feel more, as I can realize now, how he felt, that a great work is here to be done and that it is a privilege and an honor to have a part in it.

I am here to express in simple words my appreciation of the kindness shown by many members of your profession during these years since that conference; to make you realize, if possible, how keenly we at the University value our rich heritage from your city and your ancestors; how directly our present school is descended from yours; how much we are daily inspired by our studies of the past; how hard we are trying to bring to pass the vision of those men who labored here; and finally, how much we

*Delivered before the Mobile County Medical Society, Mobile, May 15, 1937.

need your help in our endeavor to build a medical school which shall measure up to their high standards and which shall be an institution whose service and influence shall permeate to every corner of the state.

I have read the memoirs of Josiah Clark Nott as written by Dr. William H. Anderson and published in the transactions of the State Medical Association in 1877. I have studied every bulletin issued by the Mobile school. I have carefully preserved every paper written for the Nott portrait unveiling by the graduates of that school, who wrote of their old teachers from their own vivid memories. We are collecting, with the aid of a fund given by succeeding classes of our own freshmen, every book, journal and manuscript we can find from the pens of the old Mobile faculty or from the pens of others about them. We are seeking to make the series of the Mobile bulletins complete and would greatly appreciate acquisition of any copy which any person can give. We are very anxious to complete and to hang on our walls the collection of portraits of all the Mobile faculty, either originals or copies, and we have even acquired some funds to help defray expenses of copying and framing them if you will be kind enough to help us secure even copies. We want every Alabama young man and woman who goes through our school to know its early history and their heritage, a heritage of which all may well be proud.

I am not blessed with the gift of oratory nor have I any desire to ring the changes on sentiment. But I would submit a few bits of evidence of our sincere efforts through the years to bring the best of the past of medicine in Alabama down to date and to project it through the minds of youth into the years of the future.

The first is a diploma and a time stained clipping from a Richmond newspaper, encased in one of those old metal containers in which prized diplomas were formerly kept. One cannot help realizing how highly this diploma was esteemed by its owner. It consists of an old fashioned parchment with an engraving of the old Mobile school building. It bears the signatures, with degrees and titles, of F. E. Gordon, F. A. Ross, J. F. Heustis, William H. Anderson, J. C. Nott, George A. Ketchum and J. W. Mallet. It certifies the graduation in medicine from Mobile of M. S. Ramsey in March 1861. He must have been a member of the first class graduated in medicine in Alabama. The clipping is apparently from the Richmond Examiner. Its first paragraph reads,

"Killed, in the late battle near Richmond, June 27, 1862, Dr. M. S. Ramsey, of the 'Greensboro Guards,' 5th Regiment, Alabama Volunteers, in the 22nd year of his age."

There follows a sketch signed "Ellis" which shows Dr. Ramsey was the first lieutenant of his company, a fighting man as well as a doctor.

The second is a sheaf of typed pages of notes I have made from the old medical catalogs, from 1859 to 1920. This is a condensed history of the first Alabama Medical College, *source material* of its organization, its early purposes, its faculty changes, its regulations and standards. No one need talk of the lack of high standards of some of the old so-called "proprietary schools." They were indeed the property of the proprietors, but some of those old proprietors exhibited a pride of ownership and a sense of responsibility which may well be emulated by the members of some medical faculties of the present day. Those men represented the best of their time. We should hate to think the world does not progress, but the best that any man does at any time is worthy of the respectful study of those who follow him. Under date of 1885 in these notes is reference to "The Museum" collected in various parts of Europe by Professor Nott at a cost which seems to have varied from $50,000 to $75,000. Nearly three pages are devoted in the 1885 catalog to a description of this museum and particular mention is made of a papier-mache' preparation. May I quote briefly from the catalog description:

"There are several mammoth preparations demonstrating the distribution of nerves throughout the body, and, being represented on quite a magnified scale, the smallest ramifications of nerve filaments may be followed out to their ultimate terminations. In this collection of preparations, devoted to the nervous system, is one which perhaps has few counterparts in the world. It was obtained in Paris from the anatomist who made it, and who, regarding it as his masterpiece, parted with it very reluctantly for a consideration of $2,000. It represents a very rich field of anatomy, showing, as it does, the cranial nerves from near their origins to their points of exit from the cranium, and then to their final distributions. It also shows, in an exquisite manner, the anatomy of the eye, includ-

ing its finest nerve region, especially the nerve anatomy of these parts. The entire preparation is masterly, minute and comprehensive, and for purposes of demonstration is invaluable."

This stately and old fashioned description frequently makes the old medical catalogs most interesting to a modern student. It will be of interest to the alumni of the old Mobile school to know that this $2,000 preparation is being used in the dissecting room of the present School of Medicine of the University of Alabama, and many other preparations of that old museum are also carefully preserved at the University now. Other interesting connections with the old school include a fine portrait of Dr. Ketchum presented by Mr. James Van Antwerp of Mobile.

Time does not permit reference to many interesting steps in the development of the old school. Suffice it to say there are many evidences of efforts to stimulate scholarship and to maintain a school in accordance with the highest prevailing standards.

The third bit of evidence is the charter and a plaque of our Freshman Memorial Library Fund established in May 1930, from which we purchase books and journals pertaining to medical history, ethics and economics, especially of Alabama and the South. From this fund we have purchased portraits of J. Marion Sims and John Y. Bassett, of Huntsville, hero of Osler's "Alabama Student." From this fund we should *like* to defray, at least in part, the expense of copying and framing portraits of all the old Mobile faculty. In this way may the *students* of our present school show their appreciation of the faculty of their parent school and have strengthened their knowledge of the personalities who made that old school great.

There are many other things which might be said along this line, but perhaps I have gone far enough. There is one other very important connecting link I should like to reserve for conclusion.

Before telling you briefly about your school of the present day, allow me to refer to a few Mobile boys. Since I have been at the University I have had the pleasure of association with many fine medical students, among whom the Mobile boys have stood out for their brains and their personalites. The first in my time were Donald McGrew and Socrates Rumpanos who entered in 1933. Donald was freshman class president, transferred to Rush for his last two years, graduates this spring and is resident now in the Chicago Hospital for Contagious Diseases. Socrates also made a very good record, transferred to Duke for his last two years, graduated last March and is now serving an interneship in surgery in the Baltimore City Hospital. The following fall came Samuel S. Murphy, who stood high in his class, transferred to Tulane at the end of his second year and is a junior there now. Gordon Hamilton, a boy of charming personality, entered the following fall, but withdrew to become a teacher of physical education. Last fall entered one of the finest young men in his class, William Gorgas Fonde', who is making an excellent record this year. To this list must be added the son of one of the old Mobile faculty, Alfred Edward Maumenee, whose father now is one of the leading ophthalmologists in Birmingham. Edward finished his first two years at the University with a record which won him acceptance for junior standing at three of the best medical schools in the country. He chose Cornell, where he is finishing his junior year now. Of him Dean Edwards at Cornell said to me recently, "If you have any more boys at Alabama like Ed Maumenee, we should like to get them." This year's freshman class also includes Emit L. McCafferty of Mt. Vernon, which is at least in Mobile County.

We are proud of these Mobile boys. Like Cornell, we want more of them. May I assure you, however, that they are typical of most of the boys in our school today, fine clean Alabama men, who comprise the great majority of our limited student body.

In conclusion I presume you want to know something of our school at present. It is stronger and enjoys a better rating, we believe, than at any previous time in its history. Acting on the unanimous request of the Association of American Medical Colleges and the American Association of State Universities, the Council on Medical Education of the American Medical Association has fairly and finally fixed the status of the so-called "two-year medical schools" by voting this last spring to rate all medical schools on their *individual merits* and to publish approved two-year schools as approved "Schools of Medical Sciences," validating to the complete four-year medical

schools their basic medical sciences of anatomy, chemistry, physiology, pharmacology, bacteriology and pathology, and allowing approved Schools of Medical Sciences to give also such introductory clinical courses in the second year as each school may see fit to offer and permitting the approved four-year schools to accept such credits for these latter courses as any four-year school may choose to accept in any individual case. In adopting this plan, the Council on Medical Education and Hospitals of the American Medical Association follows the practice which prevails in England and Canada. At no time has Alabama been in any danger on the *quality* of its work and at *all* times Alabama has asked *only* that *it be judged solely on whether or not its teaching and research measured up to the standards of the first two years as given by the better four-year schools.*

The net result, so far as Alabama is concerned, is that its school remains on the approved list of the American Medical Association and retains its membership in the Association of American Medical Colleges *precisely as it has since its foundation on the University campus.* Meanwhile the school is being steadily strengthened and the highest standards of admission and of instruction are being maintained. *All its course credits are accepted at face value by the leading four-year schools. The quality of its teaching is proven by the record.* Since 1928 every student who has completed the first two years of medicine at Alabama with passing grades has been transferred to thirty-three different approved four-year schools, ranging from Harvard, Johns Hopkins and Cornell to California and from McGill to Tulane. Of these 100% transfers, 99.4% have been promoted and graduated with their classes. The quality of medical research by the medical faculty is indicated by the appearance of practically every teacher every year on the programs of national research societies and by several grants-in-aid of research by the Rockefeller Foundation and other organizations. *Our policy is honestly and intelligently to do such good work in the present two-year school that, when the proper time comes to expand into a small and strictly high grade four-year school, we shall have the confidence of the rating authorities in our purpose and in our ability to give the complete course in a manner to meet the most exacting standards.*

Medicine is the only one of the ancient and honored professions in which Alabama students are forced now to go outside their state to complete their education. Students may earn in Alabama degrees in arts and sciences, business administration, engineering, law, nursing, and pharmacy. The Board of Censors of The Medical Association of the State of Alabama and of our own Medical Alumni Association have repeatedly endorsed the development of a four-year medical school. Only last year the Medical Alumni Association recorded its "hearty approval" of our policy of maintaining "a small, high-grade school" and resolved: "That this Association again pledges its united support for the enlargement of the Alabama School of Medicine to cover the full course of four years as soon as the financial condition of the state makes that development possible."

The trustees of this University in May 1930 formally expressed themselves favorably to completion of the medical school. *There is need for this.* In the last twenty years the number of doctors in Alabama has decreased approximately 600 whereas the population has increased by more than half a million. The ratio of doctors to populaton in Alabama now is only about one-half the national average. In the session of 1934-35 one hundred eighty-two native Alabamians were forced to go outside their home state for their medical education. Conservatively they took out of the state more than $200,000 to spend elsewhere. This continues year after year. Our school is doing its best to meet this situation. In the session just closing 82% of the medical students enrolled were born in Alabama or admitted from colleges within the state. Next year the ratio will be above 90%. More and more the most desirable premedical students of the state seek admission to our school first.

Plans for the development of the medical school as drawn by the Dean of the School were endorsed by the late Dr. Richard N. Pearce, head of the Division of Medical Sciences of the Rockefeller Foundation, in the following language: *"The future of medicine lies in the state universities. Alabama is well situated geographically for such a medical school. Your plans are*

*sound. Every state which can afford it should have its own school. It is the biggest factor in solving the problem of medical care in rural districts."*

Plans were likewise heartily endorsed by the late Dr. Samuel W. Welch, Alabama's distinguished State Health Officer, who was himself a member of the Council on Medical Education and Hospitals of the American Medical Association.

The time is not yet ripe for carrying out these plans, but they should be kept in mind, and in the not too distant future Alabama should be able to offer a high grade, complete medical education to its own young men and women. In the session of 1934-35, according to reports of the American Medical Association, *more than 42% of the medical students of the United States were enrolled in California, Illinois, Massachusetts, New York and Pennsylvania.* It is hard to see how that kind of concentration promises much help for the deep South.

The intangible benefits of a high grade medical school, however, are not so often considered, although they are the most important. *They cannot be measured in terms of dollars and cents, nor in the ratio of doctors to population. Every informed and thoughtful citizen realizes that in cities and states which fortunately possess approved medical schools the practice of medicine and nursing, hospitalization, medical research, public health and industrial development are indirectly benefited, and medical practice is stimulated to maintain itself on a higher plane. This is particularly true when a school conscientiously meets its responsibility in carefully admitting only those students whose ethical principles measure up to the best traditions—and that high standard is being rigorously upheld at Alabama as well as high standards of scholarship.*

And now let me conclude with the final connecting link which I believe, and I am confident you believe, means much to the future of the whole state, including Mobile and Tuscaloosa and every city and hamlet. An honored man in Mobile history was Richard H. Clarke. His grandson is president of the State University. Your own Doctor Mohr heard President Foster's first address before doctors at the meeting of the Medical Alumni Association in Birmingham a month ago. I am sure he will agree that the new president showed a grasp of the problems of medical education of Alabama, which was quite remarkable for his short tenure of the University presidency, and a sympathetic interest in their solution for the welfare of the whole state. My impression of Doctor Mohr's remarks at that banquet is that Doctor Mohr has faith in President Foster. *We all at the University* have faith in him and, in closing, I want to thank you again and to ask you to give to our new president, grandson of your townsman, that loyal support, that encouragement, that sympathy which will help him to carry successfully, and to the honor and welfare of Alabama, the tremendous responsibility which the state has placed upon him.

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**Hypertension In Young Individuals**—In all probability, the greatest cause of hypertension in early adult life is chronic nephritis. Acute nephritis, in the initial attack, often does not cause hypertension. Acute exacerbations of chronic nephritis do cause such an elevation. Often there will be no symptoms particularly referable to the kidneys. The presenting complaint may be failure to grow, failure to gain or loss of weight, general weakness, pallor and headache. Or the symptoms may be referable to the cardiorespiratory system, namely, palpitation, dyspnea or dependent edema. Examination of the urine will usually show albumin, casts and cellular elements, but if the time of the examination is sufficiently removed from the last exacerbation, the urine may, on a single examination, be negative. One should, therefore, always resort to repeated examinations and also to kidney function tests and eye ground study. A carefully done ophthalmoscopic examination through well dilated pupils by a competent observer will give us an excellent guide as to the state of the vascular tree and in chronic nephritis will often show exudates which are quite characteristic. Many tests for kidney function have been devised and each one has some value, but when all is said and done, the ability of the kidneys to concentrate and dilute urine is our best guide. Early recognition and proper treatment of chronic nephritis by removal of foci of infection, proper diet and prolonged rest may result in a restoration of kidney function and a consequent fall in blood pressure and prolongation of useful life. Chronic nephritis, therefore, as a cause of hypertension should be constantly borne in mind when we are considering young patients. Congenital polycystic kidneys may occasionally be found accountable for an otherwise unexplained hypertension. The symptoms and the mechanism of the hypertension are essentially the same as accompanying a chronic nephritis.—*Purks, South. M. J., October* 1937.

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

October 1937

## DIURETICS

"In patients with acute nephritis with toxic symptoms and with a very low urine output, diuretics seem to be of little help, and, as they may, judged from animal experiment, do harm, it seems wise not to use them in the treatment of such patients. In chronic nephritis with nitrogen retention and toxic manifestations, so-called uremia, clinical experience is that diuretics do not help, and that sometimes here they seem to do injury."

The above is from the discussion of diuretics by Christian.[1] The Boston investigator goes on to warn us that hydrothorax responds very poorly to diuretics and should be relieved by tapping and he holds that "subcutaneous edema and ascites are the profitable fields for the use of diuretic drugs." And he further states that "the forms of edema, in which diuretic drugs play their chief role of effectiveness, are the forms of edema that we call renal edema, the so-called nephrosis syndrome, and circulatory edema, either cardiac or hepatic."

Of course Christian thinks highly of digitalis as a means of improving the circulation and thereby of eliminating edema due to circulatory failure. He regards the three mercurial diuretics as being very satisfactory, though he reminds us that novasurol is apt to be quite toxic. Salyrgan he considers as being nearly as satisfactory as mercupurin and both of the latter are definitely preferable to novasurol. Christian thinks that the xanthine diuretics are effective in many cases, but much less so than the mercurials.

Hayman[2] of Cleveland has also been conducting investigations into the effects of diuretics and his conclusions are quite similar to those of Christian. Hayman's summary is that "diuretic drugs should be regarded only as adjuvants to other methods of treatment in the removal of edema. There must be an adequate renal blood flow and a certain degree of parenchymal integrity in the kidney for them to be effective. They have no value in acute nephritis and rarely in chronic glomerular nephritis. Diuretics have their greatest usefulness in congestive heart failure, after the patient has been digitalized. Here the mercurials, salyrgan and mercupurin, are the most regularly effective. In portal cirrhosis with ascites, while diuretics have not prevented the necessity of tapping, the regular use of these mercurials has in my experience lessened its frequency. Patients with 'nephrotic' edema have responded more regularly to ammonium chloride and salyrgan or to urea than to any other diuretics."

Probably very few classes of drugs are more grossly abused and improperly used than diuretics. And yet, when correctly indicated and intelligently administered, it is little short of amazing how much good they can accomplish. And the practicing physician, wishing to obtain for his patients the benefits of diuretics and seeking to avoid their pitfalls, will do well to follow the excellent advice given by Christian and Hayman.

## ARSENICAL POISONING

About a year ago an article on arsenical poisoning appeared in this Journal—5: 295-296 (Feb.) 1936. It was pointed out at that time that calcium arsenate is sold without restriction throughout the state, and no

1. Christian, Henry A.: Diuretics and What They Do, New England J. Med. 215: 709 (Oct. 15) 1936.

2. Hayman, J. M., Jr.: The Clinical Use of Diuretics. J. A. M. A. 107: 1937 (Dec. 12) 1936.

coloring matter is added to warn the public. Often it is mistaken for flour, and, furthermore, it is a common practice in the rural districts to mix calcium arsenate with flour when preparing an insecticide. Since there are few farm houses in the state that do not have a supply of this substance, a convenient chemical is therefore widely available for accidental and homicidal poisonings.

Until recently accidental arsenical poisonings reported to the State Toxicologist have approximated fifty human cases a year. Along with this a large number of domestic animals have suffered from the ingestion of this chemical. However, during the past six months only two human cases have been recorded. Mr. Nixon, the State Toxicologist, believes that this marked reduction is due to the wide publicity which his office has given to the dangerous properties of calcium arsenate. This has caused Alabamians to exercise greater care in the handling of arsenical insecticides.

Mr. Nixon[1] states: "This type of poisoning has brought such serious results to the people of the state that I think the situation justifies periodical publicity that will warn the people of the danger from a poison that is so widespread and so promiscuously dispersed." The medical profession can do much to spread accurate information concerning the effects produced by the ingestion of calcium arsenate.

## Correspondence

*To the Editor*:—The editorial on "Drugs Used in the Eradication of Hookworm," page 54 of the August issue of this Journal, is rather misleading. Realizing, of course, that this editorial is merely a review of an article, "What drug best kills hookworms?" by Dr. Clayton Lane, the writer, nevertheless, would like to take issue with some of the points raised.

Most anthelmintics are relatively toxic for humans but rarely kill the individual because of their low absorption from the intestinal tract during their sojourn. The quotation employed by the writer of the editorial from Lane's article, "since hookworms rarely kill directly there is no justification for putting efficiency of anthelmintics before their safety," would be justified, perhaps, if anyone of the anthelmintics caused an appreciable number of deaths. The author of this article under review stands in apparent self-contradiction in as much as he remains still a thymol devotee, while most helminthologists rate thymol as poorly effective, frequently toxic and quite undesirable as compared with other hookworm anthelmintics. True enough, hookworms, per se, do not often kill but in areas of wide hookworm infestation, a few deaths may fairly be attributed to them; whereas, anthelmintics could hardly be held responsible for as many deaths as would follow in the absence of all treatment.

The quotation from the author's article that hexylresorcinol "also ran" is definitely erroneous and would seem to reflect the strong personal bias of the author. Of all the hookworm anthelmintics, hexylresorcinol seems unquestionably to be the least toxic. Any drug that can be given as a therapeutic measure, depending on its absorption and excretion in the urine for its remote beneficial results, without definite harm, certainly should not be classified with lethal drugs, whose action is dependent on their ability to kill hookworms in less time than lethal or dangerous amounts can be absorbed. Hexylresorcinol, when first introduced on the market, did produce phenol burns if chewed. Following the discovery of this fact, hexylresorcinol was removed from the market until recently when it was placed on sale again in a hard capsule, thus preventing contact with the oral mucous membrane. Hexylresorcinol can be expected to remove about 75% of the worms. It is a comparatively safe drug to give to patients showing marked symptoms of the disease. Any other anthelmintic is not without danger in the face of severe hookworm infestation. In an infection combined with ascaris, hexylresorcinol appears definitely to be the drug of choice.

W. H. Y. Smith, M. D.,
Assistant Director,
Bureau of Preventable Diseases,
State Department of Health.

September 14, 1937.

1. Nixon, H. W.: Personal communication.

## Committee Contributions

### MATERNAL AND INFANT WELFARE

#### Annual Report Of The Committee

#### FOREWORD

In the July Journal of the Association, the Committee's annual report was published in condensed form, concluding with the statement that the complete report would be printed subsequently. In compliance therewith the following is submitted:

The Committee on Maternal and Infant Welfare during the past year has confined its activities to a study of maternal problems in Alabama. We are particularly concerned with the cause of each death and the adequacy of the treatment rendered.

In our report of last year we recommended further study through a modified maternal mortality study form.

Neither the method of the survey nor the figures tabulated for 1936 give an accurate

picture of the maternal problem in our state. We realize that many important details of such a report are necessarily left out for the sake of brevity and clarity, but believe that, by presenting the principal causes of these deaths, the adequacy of treatment, and by taking into consideration the facilities at hand for rendering the service, we can better approach the almost insurmountable problem.

In the beginning the Committee wishes to thank Dr. B. F. Austin, Director of the State Department of Health's Bureau of Hygiene and Nursing, and its statistician, Mr. Leonard V. Phelps, as well as every physician who returned a study form that requested information. It was through the cooperation of county health officers, midwives, nurses and hospitals that much of this information was obtained.

During the year of the survey there were 61,072 births recorded in the state. Of these parturient mothers, 426 died, a puerperal death rate of 7.0 per 1,000 live births. During a span of five years (1932-1936) the number of deaths has decreased by 78—a favorable difference of 1.28 in the death rate.

While there were 426 maternal deaths last year, we received study forms from only 288 doctors, a rather high return nevertheless. These 288 forms revealed the following information:

There were 211 maternal deaths with pregnancy beyond the 7th month. Of this number, there were only 13 mothers who had adequate prenatal care—a percentage of 6.2. Of these 13 there were only five (5) mothers who had adequate delivery care. There were 198 mothers who did not receive adequate prenatal care. There were 77 cases who died due to termination of their pregnancy before viability.

The causes of death of the 13 who did receive adequate prenatal care were as follows: eclampsia 5, infection 4, pneumonia 2, and postpartum hemorrhage 2. The procedures of delivery were divided as follows: spontaneous 5, version 4, forceps 1, manual dilatation 1, cesarean section 2, manual removal of placenta 1.

### OPERATIVE INCIDENCE

Of the 211 women who died in the third trimester of pregnancy, 63 or 21.9 per cent had some form of operative procedure directed toward delivery before death. These included insufficient operative procedures, as well as completed operations, and are recorded as follows:

*Forceps*: Forceps operation was the procedure of choice in the treatment of 22 cases or 7.6 per cent.

*Version*: Braxton Hicks version, or version followed by immediate extraction, was the operation of choice in 14 cases or 4.9 per cent. Version was more frequent in rural than in urban centers. The most common indication for version was placenta previa. Postpartum hemorrhage and infection were responsible for the death of 4 women in whom the placenta was removed manually.

*Cesarean Section*: Cesarean section was the procedure of choice in the treatment of 23 cases or 8.0 per cent. The most frequent indication for cesarean section was eclampsia 17 and cardiac conditions 3. Among the completed forms the average duration of labor in the 6 cases was 31.4 hours. The other study forms gave incomplete information as to the duration of labor. One cesarean section was performed after 87 hours of labor, and another after 72 hours of labor. Two (2) postmortem sections were performed, and both delivered live babies. Cesarean section was the procedure of choice in 3 cases before viability.

The causes of death in the operative incidence were as follows:

*Forceps*: Eclampsia 7, hemorrhage 6, infection 5, mitral insufficiency 1, and toxemia 3.

*Cesarean Section*: Eclampsia 12, puerperal hemorrhage 2, and infection with associated complications 7.

*Version*: Postpartum hemorrhage 7, infection 5, and eclampsia 1.

### CARE DURING DELIVERY

Of the 22 forceps deliveries, 5 received inadequate delivery care.

Of the 13 version deliveries, 10 received inadequate delivery care.

All 4 cases of manual removal of the placenta received inadequate delivery care.

Twelve (12) cesarean section cases received inadequate delivery care, making a total of 42 operative cases receiving adequate care at the time of the delivery, and 21 receiving inadequate care.

SPONTANEOUS DELIVERY

Of the 104 spontaneous deliveries, 30 received adequate delivery care and 74 received inadequate delivery care.

Heart complications were responsible for 12 deaths, eclampsia 37, puerperal hemorrhage 12, infection 40, and unknown 3.

There were 39 mothers who died due to postpartum hemorrhage. In only two instances did the physician in charge try to replace the blood loss by means of transfusion. In other words, only 2 cases received adequate delivery care out of the 39. There were twenty-two (22) mothers who died undelivered.

PLACENTA PREVIA

There were 10 cases that died due to placenta previa. The choice of delivery was version in 4 cases, cesarean section in 1, spontaneous 2, died undelivered 2, and incomplete information 1.

ABORTIONS

Seventy-seven (77) mothers died due to termination of their pregnancy before viability. There were 13 abortions, or 16.9 per cent, that were credited with having been criminally induced. There were thirty-nine (39) spontaneous abortions. There was only 1 therapeutic abortion. Cesarean section was the procedure of choice in the treatment of 3 cases. Forty (40) died of sepsis. Hyperemesis gravidarum was responsible for 1, puerperal hemorrhage 5, premature delivery 1, ectopic pregnancy 2, tetanus 3, cardiac conditions 2 and eclampsia 1.

SUMMARY

The outstanding facts of this report are as follows:

There were only 13 cases that received adequate prenatal care, and of that number no more than 5 received adequate delivery care. To impress this upon your minds, there were 5 who received adequate care throughout the entire pregnancy and delivery making a percentage of 2.37.

Infection was the outstanding cause of death, claiming 128 lives. Eclampsia and its subdivisions were second with a total of 112 lives. Hemorrhage and its subdivisions were third, claiming 49 lives. Of this number only 2 were transfused. Pneumonia and intercurrent disease were responsible for 32 lives. There were 21 cardiac deaths. Incomplete information came in on 35 forms.

The midwife was first in attendance in 61 of the cases. The doctor was in attendance in 211 cases, and others not physicians in 7.

One out of every three babies delivered was spared, making a total of 101 live births.

Ten years ago the deaths due to typhoid fever and maternal care were about equal. Today typhoid is a rarity, claiming only 80 lives last year, while maternal deaths claimed 426 lives, a drop of only 78 for the five-year period.

There are many ideal ways to approach this problem, namely, good prenatal care for every parturient, conservative uniform plan of treatment for each eclamptic, a more careful observation of the principles of asepsis, and antisepsis along with fewer vaginal examinations, manipulation through an unprepared vulva during labor, and judicious use of transfusions in postpartum hemorrhage and sepsis.

In order that we may all understand what is meant by adequate care your Committee will furnish articles by outstanding men through the medium of the State Medical Journal on adequate care in infections, eclampsia, hemorrhage and intercurrent disease covering the principal causes of deaths in this report.

RECOMMENDATIONS

As a practical approach to this problem we feel that our maternal mortality study should continue and that every county health officer should be required to investigate every maternal death as to the adequacy of prenatal care, delivery care and their availability. The amount of effort and study put forth by the health officer should be in keeping with the amount of effort directed toward typhoid deaths. In other words, put them on the same basis. We also recommend that these reports be filed with the State Department of Health for study at least ninety days before the annual meeting of the Association.

The problem of reducing maternal and infant deaths is a universal one and only by the conscientious and persistent effort of the public, the medical profession and the health authorities can it be solved.

A. E. Thomas, Chairman,
Hughes Kennedy, Jr.,
J. M. Weldon.

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

James G. McAlpine, Ph. D., Director

## IMMUNITY IN MALARIA*

### IV. TREATMENT IN MALARIA AND ITS RELATIONSHIP TO IMMUNITY

The exact effect of antimalarial drugs on malaria plasmodia is open to speculation. It is known that quinine does not directly assail the parasites, as quinine preparations have no appreciable action on the parasites in vitro. In vivo the effect of the drug seems to be through the stimulation of the body of the host to the production of some other substance which is malaricidal, as observations show vacuolization of the plasmodia and a reduction of merozoites after treatment. Quinine and atabrin have about the same effect on the malaria parasite. Both destroy merozoites and schizonts and thereby indirectly control gametocytes. Plasmochin on the other hand is highly gametotrophic. Therefore, often, to relieve a patient of symptoms of malaria and at the same time render him more quickly non-infectious to mosquitoes, a combination treatment of quinine sulphate and plasmochin, or of atabrin and plasmochin is administered.

*Quinine Therapy*: Quinine is absorbed rapidly in the stomach and small intestine and is taken to the liver and to the kidneys. Ten per cent is not eliminated. Since quinine is variable in its action, only the best grade should be used. A sluggish liver and a mucous coating in the stomach and small intestine prevent absorption. Consequently, purgation is necessary before administration of quinine if the best results are to be expected. Attempt should be made to have a high concentration of quinine in the system at the time of merozoite formation as this stage is the most susceptible; gametocytes are particularly resistant to quinine. A table will be illustrative:

| TYPE OF QUININE DOSAGE | MAXIMUM CONCENTRATION IN BODY |
|---|---|
| 30 grains, single dose. | Within 8 hours—3 to 6 mgm. per liter. |
| 10 grains, 3 times a day. | After 8 hours—3 to 6 mgm. per liter, approx. |
| 5 grains, 6 doses. | After 18 hours—3 to 6 mgm. per liter, approx. |

*The last of a series on the subject. The first appeared in the July number.

Quinine should be administered by mouth after a preliminary purgation whenever possible. The best way is by means of capsules; hard tablets are not completely absorbed. The standard quinine treatment should be used in acute malaria and in subtertian infections. The short course treatment of not more than fifteen grains of quinine per day for not more than ten days is fairly satisfactory in benign tertian infections. Although more relapses occur, usually there is better cooperation from the patient, and the method is also more economical. Sinton's alkaline treatment has been reported as a satisfactory method. Here, after preliminary purgation, the patient is given 1 ounce of an alkaline mixture which is followed in ½ hour with 1 ounce of quinine mixture. In acute malaria, when necessary, 10 to 15 grains of a soluble preparation of quinine may be given intravenously. Intramuscular injections of quinine cause fibrosis and destroy nerve tissue and should not be used. The type of parasite and the condition of the patient should be considered when deciding on the kind of treatment and method of administration. It is highly probable that too much quinine has been given formerly. The present thought is that prompt efficient treatment is necessary in subtertian malaria because of its malignancy and unpredictability, whereas in benign tertian infections the patient is better off having a few paroxysms and thus building up a degree of immunity before therapeutic termination of the disease.

*Plasmochin Therapy*: Plasmochin is a tasteless powder developed and used in Germany during the war as a substitute for quinine. It has been tested experimentally in bird malaria, and has been used in human malaria in some areas. Plasmochin is much more toxic than is quinine and is administered in small doses, 0.03 to 0.06 gram usually producing no toxic symptoms. Because of the toxicity of the drug and because of its specificity for gametocytes it is often administered in small doses in combination with either quinine or atabrin—0.1 gram atabrin, 0.01 gm. plasmochin. Any plasmochin treatment should be under the direct supervision of a physician.

*Atabrin Therapy*: Atabrin experimentally shows no evidence of toxicity. It has been associated in many parts of the world with mental cases, but this has never been satisfactorily proven, as mental cases occur in these parts of the world in untreated malaria. Atabrin sometimes causes gastrointestinal upsets in children. Its administration also causes a certain yellowness of the skin which is of no significance as the drug is a dye. The effect of this drug on malaria parasites is about the same as quinine. Certain authorities express themselves as being of the opinion that when quinine is used in the treatment of the primary case, atabrin should be used in the treatment of the relapse; or if atabrin is used as primary treatment quinine should be used in the relapse. Atabrin is also useful in cases which do not respond to quinine. It has been used effectively as a prophylactic in certain areas.[1]

A comparison of the cost and relapse rate in cases treated with quinine and atabrin, compiled by Dr. Justin Andrews, School of Hygiene, Johns Hopkins University, Baltimore, Md., is as follows,

| | COST PER COURSE OF TREATMENT | RELAPSE RATE (60% In Untreated Cases) |
|---|---|---|
| Atabrin | $1.33 | 4% |
| Quinine | 1.32 | 38% |

Other malaricidal drugs are arsenicals such as stovarsol which is useful in chronic tertian malaria, but which is of no use in subtertian or quartan infections, and quinoline which is sometimes used for its fever reducing effect. However, this drug is not easily tolerated by man. The arsenicals are toxic, and more expensive than quinine and are not as effective as the others mentioned.

James[2] observes that patients treated with quinine very early in the primary attack acquire little or no tolerance to malaria and if each relapse, or recrudescence, is treated early, the patient continues to relapse at intervals. James states that this view is supported by the observed difference which exists in the therapeutic effect of quinine given during the incubation period and on the first day of attack, as compared with its effect when administered in the middle of the course (after 5 or 6 paroxysms) or at the termination of the course. Even large doses (30 grains or more) given at any time during the incubation period have no effect; a large dose (15 grains) given on the first day of the attack has little effect; a single small dose (5 grains) given in the middle of the course stops the fever almost at once and reduces the parasites greatly, but there is a recrudescence within two weeks. A small dose (5 grains) given at or near the end of the course and repeated once a day for a few days cures 50% of cases. All observations were made on tertian malaria. James thinks that it would be unwise to assume applicability to subtertian and quartan malaria.

Russell[3] maintains that chemical sterilization of the blood by means of drugs is not only impossible but is also undesirable. He states that the real cure for malaria is the development of immunity in the patient, and that drugs may interfere with the development of this immunity if given too frequently and in too large doses. He feels that it is undesirable to use drugs in malaria except to cut off the peak of the attack and to prevent death, and that the less medication there is the sooner immunity will develop.

From the League of Nations Report, 1933,[4] the following is quoted: "To give large doses of quinine indiscriminately to all cases of malaria is a grave error. We wish to correct the view that the earlier one begins specific treatment the more successful will be the results. Clinicians should throw off the idea that by one or other form of intensive drug treatment during the primary attack they can sterilize all parasites in infected persons. The justification for aiming at early permanent cure by specific drug therapy is much greater in malignant tertian than in benign tertian malaria."

1. Socsilo, R.: Atabrin in Malaria Prophylaxis, A Preliminary Report, Trans. Roy. Soc. Trop. Med. and Hyg. 27: 421-423 (January) 1934.

2. James, S. P.: Some General Results of a Study of Induced Malaria in England, Jour. Roy. Soc. Trop. Med. and Hyg. 24: 477-525 (March) 1931.

3. Russell, F. F.: Quoted by Ashford, in "The Nature of Immunity to Malaria in Its Relationship to Antimalarial Therapy," Am. Jour. Trop. Med. 16: 669-670 (November) 1936.

4. The Therapeutics of Malaria, Quarterly Bulletin of the Health Organization, 2: 185-285 (June) 1933.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### PEDIATRIC CONSULTATION SERVICE WIDELY USED BY PHYSICIANS

Since the inauguration of a division of child hygiene by the State Department of Health with a pediatrician in charge, a definite need has been met. An increasing number of physicians in the various counties of the state are availing themselves of the multifold service placed at their disposal by the division. This consists of the establishment of pediatric conferences for physicians, talks before medical groups, and child health education among various lay and civic groups in the counties.

One of these—the pediatric conferences for physicians—has been enthusiastically received by the profession and is undoubtedly a most important phase of the program. At the conference, which is held in the office of the county health officer or some other location convenient to the physicians of the county, three or four interesting pediatric cases are presented, a history carefully taken and the child examined by the pediatrician before the group. When all available information is ascertained, the patient and his parents are dismissed and a general round table discussion begun and the case discussed from all angles.

As an example of the method of approach used in handling a case, the following is cited: A patient suffering from malnutrition might serve excellently as demonstration material to illustrate to physicians the method of diagnosis by exclusion. Various possible causative factors, even though remote, such as indiscretion in diet, lack of vitamins, tuberculosis, syphilis, pyelitis, diseased tonsils, etc., suggested by the physicians, are discussed in detail to the satisfaction of all present and each disease ruled out until a diagnosis is finally reached. Various tests and laboratory procedures, such as the tuberculin test, urinalysis, blood smears, and Wassermann, are done immediately as their need is indicated. Interesting cases in which the diagnosis has already been established by the attending doctor need not be excluded since their consideration might prove to be of educational value to other members of the profession. Incidentally the only interest in the patient that the pediatrician or the health department has exists solely in its inherent value as clinical demonstration material and the fundamental basis for the establishment of these conferences is primarily education of the physician in the care of infants and children.

Diagnosis of the case and any recommendations offered are given to none other than the physician in charge and at all times the physician-patient relationship is maintained. The one avenue by which the patient can be returned to a subsequent conference is through the attending physician.

The itinerary of the pediatrician is prepared a month in advance, usually, and forwarded to the secretaries of the various county medical societies so that the physicians may have ample time to assemble their cases.

While any topic in pediatrics may arise during the course of discussing a case, stress is always laid on conditions which are commonly seen in practice and which are amenable to treatment in ordinary practice without expensive or complicated equipment. Examples of topics frequently discussed are: Care of the Newborn, Infant Feeding, Congenital Syphilis, Childhood Type Tuberculosis, Serums and Vaccines, Upper Respiratory Diseases, etc.

The aim and purpose of the program is to make the physicians conscious of the need for better infant and child care and to bring to them the knowledge of accepted diagnostic and therapeutic procedures in order that the standards of pediatrics pursued by physicians in general practice may be augmented.

It is our earnest desire and hope that an increasing number of physicians will avail themselves of the services of the pediatrician and will cooperate with the health department in an attempt to reduce the morbidity and mortality rates among the infants and children of Alabama.

J. J. R.

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**Dishwashing Machines**—Dishwashing machines have been in use in this country for approximately 40 years. Although the machines have been mechanically improved and utensils are now washed more quickly, more economically, and with less breakage than can be accomplished by hand, the sanitary efficiency of the entire process is dependent upon the machine operator, who is most often a transient, unskilled laborer.—*Cox, Am. J. Pub. Health, September* 1937.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### ALMSHOUSES AS TUBERCULOSIS SANATORIA

With the change in policy of the State Department of Public Welfare in having aged, indigent citizens cared for in private homes, rather than in institutions, the almshouse, as such, has become obsolete. These almshouses vary in size and condition, but their disposition is a problem in every county. The possibility of converting some of the better built ones into hospitals for the care of tuberculosis patients is receiving the thoughtful consideration of boards of revenue in many parts of the state.

Inspection of a number of them has revealed that there are several that could be readily converted into sanatoria without any large capital outlay for remodeling. Some are of modern construction with adequate kitchens, sewage disposal plants, water supplies, electrical connections, etc. Accommodation for from thirty to sixty patients is available in each.

For an individual county the cost of equipping and maintaining such an institution is probably excessive, but joint action on the part of several counties, such as has taken place with the Morgan County and Jackson County sanatoria, should be feasible elsewhere. The state subsidy act is now in effect and aid is being rendered to several institutions in carrying their operating load. The initial cost of equipment can probably be met by public subscription, leaving maintenance costs to the official agencies.

The medical profession realizes the need of additional hospital beds for the care of tuberculosis patients. Surgical procedures which have revolutionized the treatment of this disease demand an initial hospitalization of the patient and the opportunity of meeting this demand should appeal to the practicing physicians of the state.

### VISUAL EDUCATION IN SYPHILIS

Visual education is one of the most powerful methods of getting messages across to the public. The program to eradicate syphilis would be very inadequate if visual education did not play a major part in the educational phase of this program. Bulletins, pamphlets, pictures, moulages and posters have their place in bringing the venereal disease problems before the public. Taking cognizance of this fact, the United States Public Health Service has prepared a set of six educational posters on syphilis. They are in colors and are quite attractive. If each physician in Alabama had a set of these posters displayed prominently in his office, much good could be accomplished. They may be obtained from the Superintendent of Documents at Washington, D. C., at a cost of seventy-five cents per set. Four of the six posters are reproduced in black and white in this issue.

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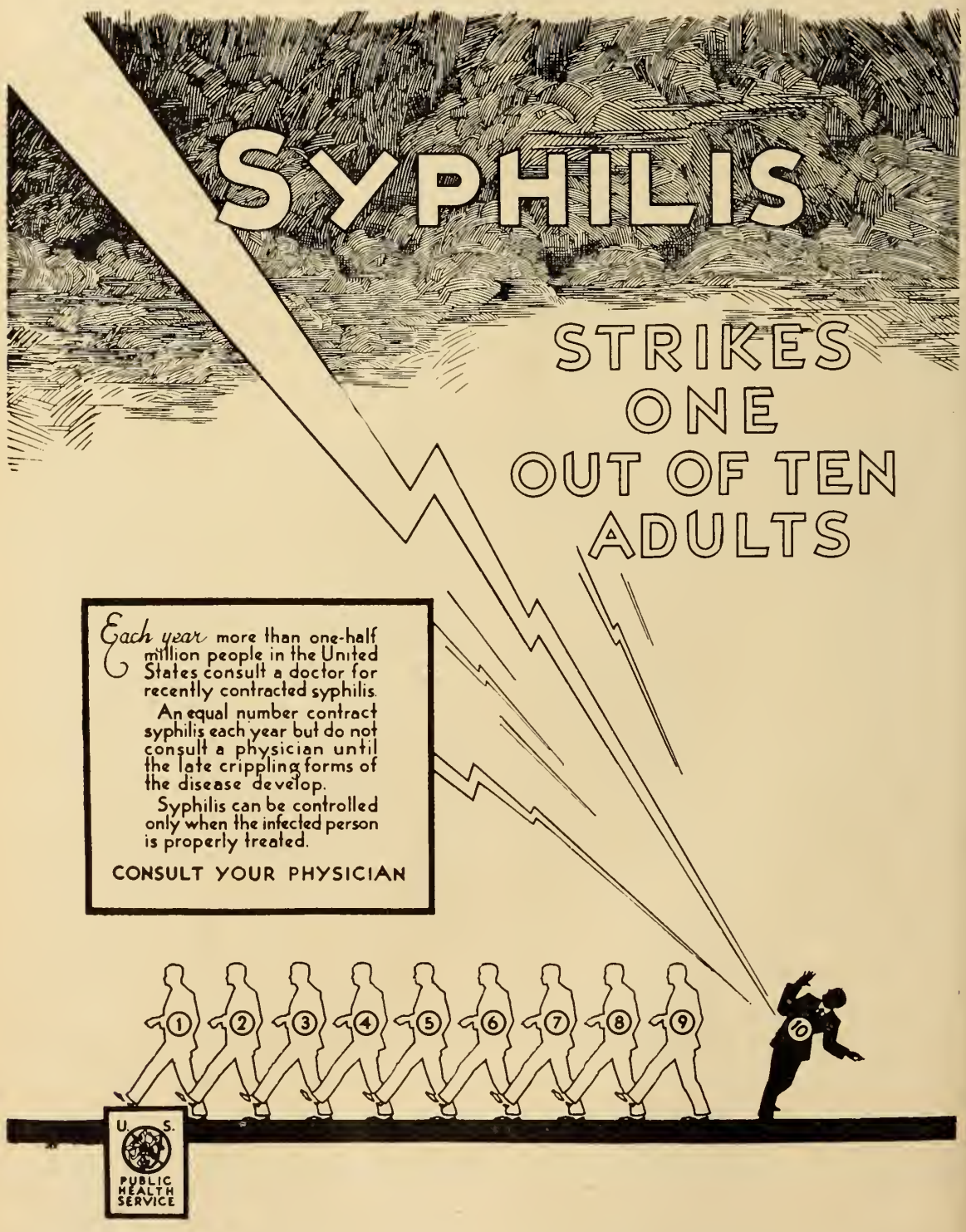
**Syphilis Control**—The private physician plays the most important role in the control of syphilis as well as in all health. Public health relies on medical science. The physician commands public confidence. The physician knows the community health needs more intimately than any one else. What is his part in the control of syphilis? What is his responsibility?

He must have a high index of suspicion. He should use the diagnostic aids available, namely, the darkfield and the Wassermann tests to supplant clinical findings. The diagnosis of primary syphilis is a laboratory procedure. Free laboratory service provided by the State health department should make the Wassermann test a more frequently used diagnostic aid. It is the physician's duty to have a knowledge of the accepted forms of treatment and be able to use this knowledge skillfully.

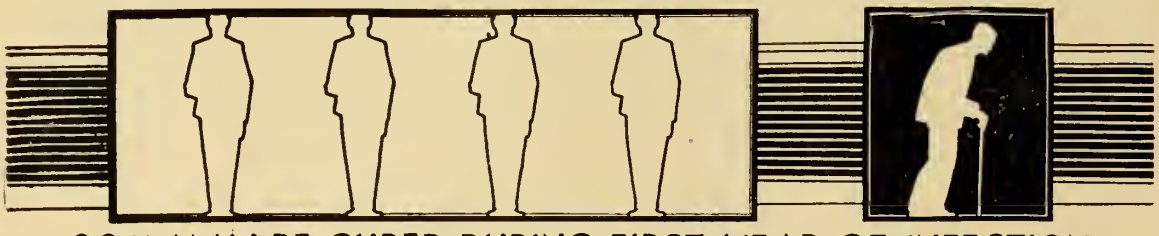
The physician-patient relationship is his responsibility. It is necessary that the patient be told exactly what his trouble is, the seriousness of it, the necessity for seventy weeks of continuous treatment and the dangers of intermissions in treatment. Whether or not a patient with syphilis remains under treatment for the entire schedule depends in a large measure upon the influence of the doctor.

The physician has another very important responsibility—in this case, to the community. He should obtain the source of the infection and all exposed contacts. These must be brought in, if necessary, with the aid of the local health department. They must be examined and treated when found infected. . . .

I want to emphasize that the private physician has the major role in the control of syphilis. His whole-hearted cooperation in the program is an imperative necessity. He has a dual responsibility in treating syphilis as in treating other communicable diseases.—*Parran, Texas State J. Med., September* 1937.


SYPHILIS
STRIKES
ONE
OUT OF TEN
ADULTS
Each year more than one-half million people in the United States consult a doctor for recently contracted syphilis.
An equal number contract syphilis each year but do not consult a physician until the late crippling forms of the disease develop.
Syphilis can be controlled only when the infected person is properly treated.
CONSULT YOUR PHYSICIAN
1
2
3
4
5
6
7
8
9
10
U. S.
PUBLIC HEALTH SERVICE


danger!
SYPHILIS WRECKS MARRIAGE
Health examination before marriage is the best way to prevent infection of newly married people with syphilis.
CONSULT YOUR PHYSICIAN
U. S. PUBLIC HEALTH SERVICE



80% MAY BE CURED DURING FIRST YEAR OF INFECTION

# Acquired SYPHILIS

Proper treatment started during the first year of the disease and continued weekly for eighteen months is almost sure to make recovery certain.

CONSULT YOUR PHYSICIAN

U. S. PUBLIC HEALTH SERVICE

ONLY 30% MAY BE CURED 3-20 YEARS AFTER INFECTION




The WISE PERSON takes no chances.
Consult a competent physician or go to a reputable clinic.
U. S. PUBLIC HEALTH SERVICE
COMPETENT MEDICAL CARE
VS.
SELF-TREATMENT
Avoid THE QUACK who guarantees a cure for syphilis, and the DRUG CLERK who wants to treat you.
SYPHILIS

## BUREAU OF SANITATION

G. H. Hazelhurst, C. E., M. C. E., Director

### AUTOMATIC STERILIZATION OF SWIMMING POOL WATER VERSUS HAND METHODS

According to all available information, the addition of chlorine or hypochlorite solutions by use of proper apparatus is today the most satisfactory method of swimming pool sterilization.

A recent bulletin by the Jantzen Swimming Association, Portland, Oregon, is worthy of attention in this connection:

"The use of hand methods of sterilization of pool water was the first development and dates back to the time when pool sanitation first became a subject of public interest.

This consists of adding to the pool water at intervals sufficient sterilizing agent, preferably one of the many chlorine compounds on the market, such as chloride of lime, sodium hypochlorite, or in later years the high test hypochlorites, such as HTH and Perchloron, in sufficient quantity to sterilize the water and have a residual to take care of sterilization until the next batch of sterilizer is added.

This method of treating pool water presents many difficulties and deficiencies, both from a sanitary viewpoint as regards the elimination of bacteria, and also from an operating viewpoint with regard to the comfort of the bather and the customer appeal of the pool.

Part of the sterilizing agent is used up by every bather entering the pool. Part is dissipated from the surface of the pool. Part is consumed in reaction with organic materials. The result is that in hand sterilization a relatively high residual must be obtained in the pool at the time the sterilizing agent is added, and this is rapidly depleted and in a relatively short time reaches the danger point and must be rebuilt by the addition of more sterilizer. The rate at which this residual is depleted varies materially with varying bathing loads, temperature, etc., and if proper sterilization is to be maintained, constant and vigilant supervision is necessary. At best the results obtained are far from perfect. The amount of residual sterilizer in the pool is not and cannot be kept uniform due to batch treatment and will of necessity vary widely. The owner and operator of a pool sterilized by this method finds himself very much handicapped.

Automatic sterilization is the accepted modern answer to this most important question. The practice of automatic sterilization calls for a continuous flow of water into and through the pool, either by recirculation or by addition of a continuous stream of fresh water from an outside source. Automatic sterilization of the pool water is obtained by continuously adding to the water flowing into the pool, through proper control equipment, the sterilizing agent, thereby continuously replenishing the residual sterilizer in the pool.

By this method the sterilizer is replaced as rapidly as it is dissipated and the bacterial condition of the water can be maintained at a safe standard at all times.

Automatic sterilization gives the operator the following advantages:

1. Continuously safe water and uniform residual.
2. Ability to maintain safe water with minimum supervision.
3. Absolute control to take care of varying bathing load and other conditions.
4. Control of algae through maintained residuals preventing the algae getting a start."

T. H. M.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 | | Estimated Expectancy |
|---|---|---|---|
| | July | August | August |
| Typhoid | 61 | 67 | 156 |
| Typhus | 74 | 73 | 70 |
| Malaria | 832 | 765 | 1026 |
| Smallpox | 2 | 18 | 1 |
| Measles | 69 | 15 | 47 |
| Scarlet fever | 22 | 25 | 64 |
| Whooping cough | 234 | 99 | 74 |
| Diphtheria | 35 | 48 | 109 |
| Influenza | 37 | 14 | 24 |
| Mumps | 57 | 51 | 3 |
| Poliomyelitis | 9 | 13 | 6 |
| Encephalitis | 0 | 1 | 2 |
| Chickenpox | 10 | 37 | 7 |
| Tetanus | 8 | 4 | 6 |
| Tuberculosis | 317 | 268 | 356 |
| Pellagra | 60 | 18 | 66 |
| Meningitis | 21 | 18 | 4 |
| Pneumonia | 118 | 51 | 56 |
| Syphilis | 1434 | 1346 | 175 |
| Chancroid | 9 | 11 | 8 |
| Gonorrhea | 396 | 358 | 172 |
| Ophthalmia neonatorum | 2 | 1 | 1 |
| Trachoma | 0 | 0 | 1 |
| Tularemia | 1 | 0 | 1 |
| Undulant fever | 3 | 8 | 4 |
| Dengue | 0 | 1 | 0 |
| Amebic dysentery | 3 | 0 | 0 |
| Rabies—Human cases | 1 | 1 | 0 |
| Positive animal heads | 60 | 58 | — |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

Rat Proofing—Absolute reliance should not be placed on the protection afforded by the rat proofing of the exterior of buildings since there are always natural openings, such as doors and windows, to be considered. It is here that the human element enters into the equation, and this is always the weakest link in the chain of protection. Time and time again it has been found that it cannot be depended upon. Rats come into the buildings through the doors and windows and proceed to avail themselves of the facilities offered in double walls, beneath floors, etc., for home making. We have records of a school building that was invaded by rats through a window in the basement, and quite a colony were living in boxed settees, pipe tunnels, etc. —*Holsendorf, Am. J. Pub. Health, September* 1937.

# Miscellany

(A release of the Medical Society of the State of New York)

## CLINICAL EXPERIENCES WITH NEWER ANALEPTICS

Charles L. Burstein and E. A. Rovenstine
(Dept. of Anesthesia, Bellevue Hosp.)

*Curr. Researches in Anes. & Analg.*, 16: 151 (*May-June*) 1937

This study is concerned with the analeptics, metrazol, picrotoxin, and coramine, which act on the vasomotor and respiratory centers as to their effects in safeguarding patients against depression of sedative or hypnotic drugs used in anesthesia.

Metrazol was administered in doses of 1½ to 2 cc. intravenously and repeated in 5 minutes if necessary. With intramuscular injection the dose was the same, the reaction similar but less rapid. Coramine was given in doses of 5 cc. repeated at 5- to 10-minute intervals until 25 cc. were used. The observations on picrotoxin have not permitted an accurate standardization of the dosage. It was given in 3 mgm. doses except in cases of intoxication from the barbiturates. However, it appears from these cases that 6 mgm. doses may wisely be used.

In morphine poisoning, ether or paraldehyde depression, cyclopropane anesthesia, metrazol was clinically most effective. Respiratory activity usually became more normal. The pulse and blood pressure were often improved and a more rapid return to consciousness was usually promoted. The action of metrazol in tribromethanol depression was not as prolonged as that from coramine, and picrotoxin was the least serviceable.

The most interesting observations were made in connection with the use of these analeptics in depression or intoxication from various barbiturates. Although not in keeping with experimental evidence, the response following metrazol was more satisfactory than from picrotoxin. First, the respiratory rate and volume exchange were improved and succeeding doses frequently awakened the patient. Coramine also stimulated the patient in some instances but with less effect than with metrazol and picrotoxin. . . .

**LYNNHURST SANITARIUM**



(Established in 1904)

NERVOUS AND MENTAL DISEASES, ALCOHOL AND DRUG ADDICTIONS

Situated in the suburbs of Memphis in a natural park of 28 acres of beautiful woodland and ornamental shrubbery. The elegance and comfort of a well appointed home. Rooms—single or suites with private bath. The Rest Treatment—with Hydrotherapy, Physical Culture and Occupational Therapy. Two resident physicians. Day and night service by trained nurses.

S. T. RUCKER, M. D., In Charge Memphis, Tenn. C. C. COUNCE, M. D., Associate




# MAPHARSEN

MAPHARSEN is easily and quickly prepared for injection. Single doses can be dissolved in syringe and ampoule, without necessitating the use of sterile beakers or other apparatus.

In contrast to the arsphenamines, Mapharsen solutions do not become more toxic on standing; agitation or exposure to air does not increase their toxicity. Haste in completing injections immediately after preparation of solutions is unnecessary.

With the patient either in a sitting or recumbent position, injection can be made according to the usual intravenous technic. Mapharsen solutions should be injected *rapidly*—at the rate of 10 cc. (the entire dose) within 30 seconds after the needle is in place.

Mapharsen treatment is conveniently administered. The ease and rapidity of injection minimize discomfort and encourage patient cooperation.

Mapharsen (meta-amino-para-hydroxy-phenylarsine oxide hydrochloride) is available in single dose ampoules containing 0.04 and 0.06 Gm., each in individual packages with or without distilled water. It is also supplied in ten dose ampoules, containing 0.4 and 0.6 Gm., for use by hospitals and clinics

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THE JOURNAL
OF
The Medical Association of The State of Alabama
Published Under the Auspices of the Board of Censors
Vol. 7, No. 5 Montgomery, Alabama November 1937

# DIAGNOSIS AND MANAGEMENT OF COLON LESIONS*

By
D. C. DONALD, M. D.
Birmingham, Ala.

Colon lesions are divided into the following groups: congenital, inflammatory, benign and carcinomatous.

The first two constitute only a small percentage of the lesions. The benign are of surgical interest mainly because they produce obstruction, either chronic or acute. They do not present any special characteristic symptoms. Not until the past decade, with improved x-ray diagnosis, were they often revealed except at necropsy or during exploratory operations on the abdomen.

Adenomas and submucous lipomas are the most frequently encountered benign lesions of the colon. Pemberton and McCarty,[1] in their recent report of six cases, and after a thorough research by them of all available literature, have revealed that only 91 cases of submucous lipomas with symptoms have been reported. Adenomas constitute 58 per cent of the benign tumors and nearly 100 per cent of the disseminated tumors of the gastro-intestinal tract. They are usually limited to the colon. Infection and irritation of the adenoma in susceptible individuals cause certain changes; e. g., diffuse hyperplasia of the glands and lymphocytic infiltration, with formation of new blood and lymph vessels. From mechanical traction and squeezing many of the adenomas degenerate into adenocarcinoma. As ably expressed, there is probably no benign process in which there is a higher incidence of malignancy than in colonic polyposis. Carcinoma is the most frequently encountered tumor of the colon. Cancer of the colon ranks fourth in frequency in the entire list of malignancies, and occurs in approximately the same percentage as carcinoma of the stomach. Almost 64 per cent of cancer of the big bowel occurs in the rectum and the rectosigmoid region, while 36 per cent occurs in the colon proper.

Deaths from carcinoma of the colon and rectum have increased markedly in the past decade. The 1934 report of the U. S. Bureau of the Census gave the number of deaths from cancer of the gastro-intestinal tract as 134,428, and of this total 21,911 deaths came from carcinoma of the colon, small bowel and peritoneum; whereas in 1924 there were 91,138 deaths from cancer of the gastro-intestinal tract and of this number 12,603 died from carcinoma of the colon, small bowel and peritoneum. This was approximately an increase of 1,000 deaths per year from cancer in these locations. It challenges our attention to devise ways and means of arresting this terrific increase in mortality from carcinoma of the colon. While more accurate statistics and better diagnosis undoubtedly account for some of this increase, it does not give a satisfactory explanation for all of it. The fact that human life has been prolonged, making more individuals subject to cancer, may be another contributing factor.

Nystrom[2] attributed the development of cancer of the large bowel to polyps in 63 per cent of the cases and assumed that there is an hereditary disposition to the condition in 50 to 60 per cent. There are two groups of polyps: those with long pedicles which rarely become malignant, and those with short pedicles which quickly become sessile. The latter become flat and broad when malignancy supervenes.

## EARLY DIAGNOSIS

Usually the first symptom noticed by the patient is some disturbance in the regularity of the action of the bowels. A certain

*Read before the Northwestern Division of the Association, Russellville, September 16, 1937.

1. Pemberton & McCarty: Submucous Lipomas of Colon and Rectum, Am. J. Surg., August 1937, pages 205-218.

2. Nystrom, T. G.: Diffuse Polyposis of Large Intestine, Finska lak.-sallsk. handl. 77: 619 (Oct.) 1935.

capriciousness occurs which takes the place of a former regularity. Associated with this, sometimes, is a reflex pyloric spasm, causing a gastric disturbance which often misleads both the patient and the doctor. It may easily happen, therefore, that much valuable time is lost in treating a supposed gastric disorder, chronic appendix, or gallbladder, when the colon should be under consideration. When a patient, who has passed the meridian of life, complains that he no longer enjoys that "clock-work" regularity of his bowels, that has been his privilege in the past, it is wise to take more than passing notice. It may be some indiscretion in diet or a disturbance in the normal routine of life that has caused a temporary irregularity which may be soon corrected. On the other hand, careful inquiry may not elicit any obvious reason for this sudden irresponsible behavior of the bowels. The explanation may be that the normal peristalsis of the colon has been disturbed by an outgrowth into the lumen of the bowel. Unfortunately, it has happened too often that this danger signal is not fully appreciated, and, after a period of irregularity, the bowels with the aid of medicine may adjust themselves to altered circumstances and become fairly regular for a time or sufficiently to allay suspicion. Then, a little later, the irregularity returns and becomes more persistent, or a sudden attack of a subacute obstruction occurs. A history such as this demands a careful abdominal examination.

Carcinoma in the right half of the colon behaves differently from that in the distal half. The cecum and the ascending colon are rich in lymphatics. Their contents are of a liquid character. These liquid contents contain organisms of high virulence, and the chief function of the right colon is absorption. The growths usually have a broad base and attack the bowel lumen in a longitudinal way but occasionally they encircle the bowel in a napkin ring fashion.

The right colon growths are usually associated with a marked anemia; oftentimes the patient presents the picture of pernicious anemia but a careful blood examination will clear the diagnosis. The tumors frequently gain such size that they can be palpated through the abdominal wall. It has been demonstrated that the degree of anemia from lesions of the cecum and right colon are often quite definitely related to the size of the lesion. Some bleeding due to congestion usually occurs; this can be detected in the stools, either by the naked eye or by test for occult blood. Pain in the early stages is rarely complained of; but there occurs a sense of discomfort by irregular and uneasy movements of the bowel. If the growth encroaches upon the lumen, borgorygmi signs appear.

Lesions of the left colon behave differently from those of the front gut. Its function is chiefly a reservoir. Its contents are largely hard fecal matter, and usually diarrhea is not present unless the lesion or the obstructed area begins to ulcerate. Obstruction symptoms may be those of an acute or complete blockage, or a mild and indefinite discomfort depending upon the degree of the fibrous tissue which encircles the bowel lumen.

### X-RAY DIAGNOSIS

The oral administration of an opaque meal is of no value in the x-ray diagnosis of a colon lesion. Instead, it may add to the severity of the symptoms in bringing on an acute obstruction of the bowel, from impaction of the barium proximal to the point of involvement. The fluoroscopic, roentgenogram examination of the colon with the barium enema will reveal the ordinary colon lesion. However, if it arises from one side of the bowel wall the tumor fails to produce a defect by this test. It is in this type of case that the contrast media will reveal its presence.

For lesions of the rectum and up to the rectosigmoid junction, digital, sigmoidoscopic examination, will oftentimes locate the lesion that failed to show up after the barium enema. Cancer of the rectum occurs twice as often as cancer of the colon proper. As a routine, the doctor should make rectal examination on each patient. In case of a suspected colon and rectal lesion, a sigmoidoscopic examination is essential.

As previously stated, heredity plays an important part in the cause of cancer of the colon, and it is known that multiple adenomatoses appear in families. Sooner or later the victim of this disease will develop one or more carcinomas. The large proliferative type of colon growth, which is detected most frequently in the transverse colon, tends to be less malignant and less prone to invade the glands than the small scirrhous

type. The superior mesenteric group of glands, which supply the transverse colon, drain into the deep glands about the aorta, and after metastasis occurs the prognosis is bad, irrespective of what treatment is instituted. Often the enlarged soft lymph glands in proximity to the growth are not due to metastasis but are secondary to the pyogenic infection.

If the adenocarcinoma of the colon is primarily colloid in type, the growth is more rapid and will have early metastasis. Also, if the growth is recognized as colloid in type, less risk of life should be taken, when considering the advisability of radical treatment, because the prognosis is poor even with the ideal surgical procedure. In contrast, if the adenocarcinoma shows a mucoid degeneration, it is evidence of a low grade malignancy.

### SURGICAL TREATMENT

The blood supply of the colon is poor compared to that of the stomach. The colon contents are dangerously infective. The right colon contents are liquid in character. The feces are rich in organisms of such high virulence that when soiling from the slightest technical error or leakage occurs peritonitis immediately develops. The left colon contents are usually solid feces; this consistency tends to put an undue strain upon the suture line and at times to produce obstruction by actual blocking at that point. Statistics from all sources show that the operative mortality rate for colon resection is high, whereas the rate for recurrence is low in comparison with gastric surgery.

The fixation of colon lesions will add to the operative technique, though the mortality for this type of lesion will not be materially increased over that following surgery for the movable tumor. Oftentimes the fixation to the parietes and the neighboring viscus results from inflammatory changes. With the proper elective surgery a large number of so-called inoperable lesions of the colon will be amenable to surgical removal.

Preliminary drainage reduces the mortality rate for radical colon surgery about half. In the absence of preliminary drainage, measures must be adopted at the time of resection to prevent postoperative distention. To prevent distention and leakage at the line of anastomosis, we must establish proximal drainage by means of a safety valve, to allow the escape of gas and fluids. Exploratory laparotomy for cancer of the colon carries a higher mortality than the blind appendicostomy or cecostomy. But the value gained from the exploration of the abdomen for location of tumor, local pathology and distant metastasis, will enable the surgeon to render the proper surgical treatment. Local anesthesia will give the desired relaxation and will serve this type case better than a general anesthetic or spinal analgesia. Such a plan is applicable for the major number of so-called border line cases. The unexplored or blind cecostomy should be reserved for the extreme case of cancer of the colon with obstruction.

It is important to note that the left side colon obstructions are not always relieved by cecostomy but better results can be obtained by colostomy in the transverse colon. Manipulation and trauma to the lesion at the time of exploration will often cause spreading peritonitis. This is due directly to the breaking down of adhesions and by disturbing the circulation of the neighboring blood vessels which are often laden with infection.

The general condition of the patient, as evidenced by the degree of anemia dehydration, and the accompanying toxemia resulting from obstruction, is significant in influencing operability.

These patients are usually in middle life or old age, and, as a rule, they have been suffering from the colon cancer for several months, and sometimes for years. They are often poor surgical risks, with impaired kidneys, disturbed nutrition, and not infrequently cardiovascular disease. Our preoperative care should be directed in combating the forces which tend to reduce the patient's general resistance. This may be accomplished by general supportive measures, graded operations and so forth. The preparation of the patient for surgery should be warm saline enemas night and morning and a well balanced low residue diet. The diet should be in an amount sufficient to meet the body's requirements, with an abundance of fluids, both water and fruit juices. If the patient is not able to take the required amount of water, 1000 to 2000 cc. of a 5 per cent glucose in saline so-

lution should be given daily, either by the intravenous route or by hypodermoclysis. For the aged and cardiac case, the rapid intravenous treatment may throw too much of a load on the circulation, with impairment to the cardiac and renal picture. To supply the fluids that are needed in this type of case, intravenous administration, regulating the flow to run 100 to 150 cc. per hour, will not overload the heart chambers or blood vessels.

Occasionally a transfusion of blood may be indicated. However, unless the hemoglobin is below 60 per cent, the transfusion should be reserved until after the operation. This will relieve the shock and the dilated blood vessels are such that they will take up the additional fluid without the strain that would occur before the operation. The best results will come from treating each case individually.

Lesions of the right colon respond to surgery better by graded operations, resulting in lower mortality and a smoother convalescence. This rule should apply to lesions in general but occasionally the picture may be one in which the tumor is small and freely movable and the colon has a long mesentery. Good results can be obtained by the resection of the growth with end to end anastomosis of the ileum and colon in a one-stage operation, and thus provide for decompression through an ileostomy proximal to the anastomosis. The advantages gained by the one-stage operation are that the convalescent period is shorter and the patient is able to return to his duties earlier. This type of pathology is seldom met with. Instead, the diseased process has existed for many months, associated with active pathological changes within the tumor, such as perforation, abscess formation and general inflammatory changes about the tumor and the neighboring organs. For this type case a graded operation is to be preferred to the one-stage resection.

The first stage operation is best done through an inner right rectus incision sufficient in length to give good exposure. Ileocolostomy by lateral anastomosis, in the hand of the average surgeon, will lessen the chances of leakage at the suture line, though the inflammatory changes in the cecum do not clear up as rapidly by the lateral as by an end to side anastomosis of the ileum and colon. This closed operation, ileocolostomy, puts the bowel at rest and with a subsiding of the edema and inflammatory changes in neighboring tissues. The first stage operation is to be followed by the resection. No fixed time should be set for it. We should permit the patient to recover from the first stage, regaining muscle tone and strength with as normal habilitation as the disease process will permit. Too, the point of anastomosis should be permitted to become strong, and there should be a well functioning stoma before doing the second stage. The average period or interval between the two-stage operation varies from two to six weeks.

At the time of resection or second stage operation our abdominal approach should be by an incision along the outer border of the rectus muscle. The incision should be of sufficient length to give good exposure. The adherent omentum to the previous scar should not be separated from its new bed but drawn aside toward the median line. This will form a new compartment to the abdomen and lessen the chances for peritonitis to occur following the resection. The resection may be followed by an end to end anastomosis of the ileum and colon, but better the ileum and colon spurs should be excised and closed as near the anastomosis as the tissues will permit. We must avoid leaving staggering spurs following the resection of the bowel and colon. If either the ileum or colon spur is left long, impaction may occur, accompanied by abdominal cramp-like pains and sometimes the viscus may rupture or blow out from the impaction, with peritonitis. To avoid peritonitis which may come from leakage following resection of the cecum and the ascending colon, a posterior drainage is established through a stab wound of the right back.

Resection with ileocolostomy by the Mikulicz technique, as recommended by Lahey,[3] is very satisfactory, with a comparatively low mortality. Its chief advantage is that the intraperitoneal work is completed in the one-stage operation. The chief objection to this type operation (resection with ileocolostomy by Mikulicz technique) is the fact that sufficient time is not given in the inflammatory lesions to get results from the anastomosis before the resection operation.

3. Lahey, F. H.: Carcinoma of Colon, Am. J. Surg. 22: 64 (Oct.) 1933.

The two-stage Mikulicz operation is to be preferred for tumors in the remainder of the colon, except the lower end of the sigmoid at the rectal junction. To preserve the rectum, the bowel is clamped two inches to either side of the tumor. The colon with the lesion is excised with cautery which is followed by an end to end anastomosis. For this operation to be successful certain things are necessary:

First, a previous colostomy at the transverse colon by the Sistrunk method[4] giving sufficient time to permit the diseased colon to clear of edema and remove its secretions;

Second, to promote this improvement, through and through daily irrigations of the distal colon with saline solution. To facilitate the irrigation, place a tube through the anal opening into the rectum. This will allow free flow of the irrigating fluid. The two colon ends when approximated are to be free of tension. The conditions that will interfere with this type of operation will be the deep narrow pelvis, the short sigmoid, the fixation of the rectum and the heavy deposit of appendices epiploicae tissue.

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## DISEASE OF THE CARDIOVASCULAR SYSTEM AS AN INDUSTRIAL HAZARD*

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Accidents in industry have shown a marked decrease in incidence over the past few years. This has been in large part due to both the employer and the employee becoming safety conscious through a well organized campaign of advertising and education; the application of various fundamental principles pertaining to mass work, and the like. The main force of the attack has been against injury from physical, chemical or other factors depending on the type of work engaged in.

In every industry there are individuals who, by virtue of disease of the heart or blood vessels, are candidates for sudden death and as such constitute a hazard in direct proportion to their *responsibility load.* By *responsibility load* I mean to indicate that person or those persons made liable to injury subsequent to the sudden exodus of a given employee. To further elucidate we may say that the *responsibility load* of a bus driver with one passenger is only one while that of a railroad engineer with one hundred passengers and crew is one hundred.

Brief reflection is sufficient to bring to light the lurid possibilities that might follow the sudden death of a locomotive engineer, a switchman, a traffic director, a bus driver or a crane operator should it occur while in the pursuit of their respective duties.

Disease of the heart and blood vessels has been the chief cause of death in the United States for many years and the rate is climbing rather than being curtailed. Frequently death from such cause is sudden but rarely is it without prodromata. The prodromata may be present over a relatively long period of time without the individual being cognizant of their grave significance. The early detection of prodromata by physicians, with the subsequent removal from responsible positions of those affected, is the one preventive approach to this problem.

Employees in the younger age bracket are in a large measure uninvolved with the exception of those having rheumatic heart disease. No matter how great appears the cardiac reserve of an employee with definite mitral disease he should be carefully examined at frequent intervals for the early detection of any subjective or objective evidence of decompensation and for the presence of auricular fibrillation. No person with fibrillation should be allowed to work where his sudden demise might precipitate injury to others, for thrombi are prone to form in the undulating auricles and with a reversion to the normal cardiac rhythm death from embolism may ensue. Rheumatic heart disease is, of course, found in all age groups.

In the middle-age bracket, syphilis may be found to have ravaged the cardiovascular system of an employee and to have thereby made him a hazard through the possibility of rupture of a cerebral or thoracic

4. Sistrunk, W. E.: Advantages of Low Median-Line Incision In Exploratory Laparotomy For Carcinoma of Rectum or Rectosigmoid, Ann. Surg. 85: 732 (May) 1934.

*Read before the Alabama State Association of Railroad and Industrial Surgeons, in annual session, Gadsden, May 19, 1937.

aneurysm. For this reason a blood Wassermann should be a compulsory adjunct to the usual physical examination required prior to employment. In one already employed, serologic or clinical evidence of syphilis indicates a very detailed history and a careful physical examination and neurologic study to ascertain the presence or absence of involvement of the cardiovascular and nervous systems. The presence of cardiac decompensation will be easily found but the more subtle aortitis or an aneurysm may be overlooked. The employee should be meticulously questioned relative to the occurrence of substernal burning, paroxysms of nocturnal orthopnea and exertional precordial distress. In respect to the physical examination great diligence must be exercised over the aortic area during auscultation of the heart.

The earliest evidence of syphilitic aortitis to physical examination is the presence of a bell-like second aortic sound. This later gives way to the soft blowing diastolic murmur denoting insufficiency of the aortic valve. The history of substernal burning, exertional precordial oppression or of paroxysms of nocturnal orthopnea or the finding of a ringing, bell-like aortic second sound, an aortic diastolic murmur or an aneurysm, indicate immediate removal of that employee from a position of responsibility. Death from angina pectoris may result with only a moderate degree of aortitis. In the presence of syphilis, that has not progressed to the stage of vascular or central nervous system involvement, prolonged, definitely systematic antiluetic therapy is imperative to prevent invasion and subsequent degeneration of the cardiovascular walls, cord and brain by spirochetal activity. Of course, suitable therapy must be expedited regardless of the state of advancement.

As we come to consider those in the older age bracket we are concerned with employees who, by age and experience have, as a rule, the greatest *responsibility load.* It is in this group that the so-called degenerative cardiovascular diseases are rampant; sudden death or incapacitating paralysis is not an uncommon termination for the constituents of this category. Coronary occlusion or rupture or occlusion of a cerebral vessel is the usual immediate cause of demise. Consequently, all employees concerned with the operation of vehicles or machinery which, if suddenly released from proper control, would spell disaster to hapless persons should have a complete medical anamnesis and physical examination once every year after the age of forty-five and every six months after the age of fifty-five. The history should be very searching for symptoms of substernal pain, intermittent claudication and dyspnea on even strenuous exertion. The physical examination should be pointed particularily at the heart and arteries. Visualization of the retinal vessels gives good indication of the degree of atheromatous change present throughout the arterial tree, including the coronary circulation, and we may come to see serial photographs of the ocular fundal effects used to more accurately determine progression from one examination to another. Palpation of the arteries for thickening should be done. Blood pressure readings are to be considered in their usual significant light, especially as regards the diastolic component, for this tells us of the constant stress against which the vessels are straining. Investigation of the cardiac stripe by teleoroentgenogram is of utmost import and study of the conducting system of the heart through the medium of the electrocardiogram should by all means not be overlooked. If careful records are kept from year to year comparison will allow the removal of many before a vascular accident occurs.

It is true that such a thorough-going examination would not be practicable for the mass of the employed, but for those whose sudden death might cause injury or death to others it is entirely feasible and will probably in time be demanded.

I am able to recall three industrial workers who died suddenly in the past few months. One was a man known to have had rheumatic heart disease with chronic auricular fibrillation and it was thought that reversion to a normal rhythm resulted in the extrusion of a fatal embolus, although an autopsy was not obtained. He was at work at the time of his death but fortunately his job entailed no *responsibility load.* Another was a railroad switchman who was not at work at the time of his death. The third man was not at work when he fell dead from coronary occlusion. Dame fortune is not always so kind; her fickleness can not be denied.

Up to this point we have considered only

the danger incurred by those made liable to injury, or worse, as the result of sudden death of a fellow worker. We must now be concerned with the position of the employer in respect to the individual who meets death. Should one of these so-called candidates for sudden death be working near machinery, high tension wires or some other hazardous location and suffer a vascular exodus, subsequently falling so as to receive obvious physical injury the burden of proof relative to the cause of death would lie heavily on the shoulders of the employer.

Another point of concern is best illustrated by the example of a known hypertensive who, while pushing a wheelbarrow, had a cerebral vascular accident with paralysis and subsequent death. Suit has been brought against the company for whom this man worked with the claim that the effort involved precipitated an untimely death.

Should there then not be a working addendum to the time worn slogan of "Safety First" to the effect that no candidate for sudden death from intrinsic cause be employed where there is a *responsibility load.*

In the great battle against occupational hazards let us not forget to remove vascular mishaps as a cause of industrial accidents.

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## MULTIPLE NEURITIS*

By
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Neuritis is inflammation or degeneration of the nerves. When the neuritis involves several nerves it is called multiple neuritis, polyneuritis or peripheral neuritis. It usually involves the distal portions of symmetrically disturbed nerves.

The disease is seen most frequently from the second to the fourth decade of life. It is my purpose in this paper to give a brief discussion of neuritis with special emphasis on some comparatively recent work on etiology. I shall also give two case reports.

### ETIOLOGY

The causes are usually grouped as toxic, infectious, and unknown. Among the most common exogenous toxins are alcohol, lead, arsenic, coal tar products, carbon monoxide, nitrobenzol, mercury, copper, zinc, phosphorus, silver and emetin. The endogenous toxins develop during diabetes and leprosy, the cachexia of tuberculosis and syphilis. Beriberi, commonly, and pregnancy, rarely, have an associated multiple neuritis. Pressure neuritis is occasionally seen. Multiple neuritis may be caused at times by any of the heavy metals. Foci of infection must be considered also.

In reviewing the literature on etiology one finds that vitamin deficiency is a big factor, if not the chief one, in alcoholic polyneuritis.

Shattuck in 1928 and Minot in 1929 suggested that avitaminosis might be an important factor in the etiology of alcoholic polyneuritis, because of the similarity of this disease to beriberi. Wechsler reported cases of polyneuritis in 1930 and 1933 in patients taking an inadequate diet. The polyneuritis was greatly benefited by taking the proper diet. The work of Minot, Strauss and Cobb showed that almost all their patients with this condition had been on inadequate diets. After these investigators observed 57 cases of their own and studied the records of 73 additional cases, they stated: "It appears that dietary deficiency, probably especially the lack of vitamin $B_1$, plays an important role in the production of alcoholic polyneuritis. The deficiency can be attributed not only to inadequate intake but also to the state of the gastro-intestinal tract and the presence of factors that can inhibit the effectiveness of nutritional elements."

In 1934 Strauss mentioned that 80 per cent of his cases had gastric anacidity or hypoacidity. Over 95 per cent also had eaten grossly inadequate diets. Nausea, anorexia and vomiting were common complaints and led to further dietary deficiency. The polyneuritis of pregnancy is believed by Strauss and Wechsler to be due to pernicious vomiting with resultant food deficiency, and Strauss reports curing three cases with adequate amounts of vitamin B. He further believes that dietary deficiency diseases as pernicious anemia, pellagra, alcoholic polyneuritis and pregnancy polyneuritis are more frequently caused by conditioning gastro-intestinal disturbances than by inadequate diets.

All the investigations and experimental research work done suggest that lack of vitamin $B_1$ and $B_2$ (G) is the probable cause

*Read at a meeting of the staff of St. Vincent's Hospital, Birmingham, April 14, 1937.

of neuritis. Another factor in alcoholic polyneuritis is the possibility of impurities in the liquor imbibed. Arsenic, lead and zinc have been found in alcohol. Some investigators claim that it is not the alcohol but the contaminants that are responsible for the neuritis.

### SYMPTOMS

A careful inquiry should be made as to the patient's occupation, keeping in mind the possibility of exposure to the various chemical agents which might be responsible for degenerative changes in the peripheral nerves. A history of some preceding infectious disease is frequently obtained, and the nutrition, diet, metabolism, previous medication and alcoholic indulgence are to be closely investigated. The various foci of infection should not be overlooked.

The first symptoms are dull aching pain, numbness and tingling, particularly of the lower extremities. The pain is boring and constant, but may be sharp and shooting in type also at times. Early fatigue is a prominent symptom. As the neuritis progresses the upper extremities usually become involved. Various motor and sensory disturbances are frequently present. These disturbances are nearly always bilateral, symmetrical, and confined to the distal parts of the extremities. Cutaneous hyperesthesia is commonly present. A soreness and tenderness in the muscle is a characteristic feature of multiple neuritis. Nerve tenderness is also present.

### PROGNOSIS

The prognosis is good in most cases provided the cause is removed early. In the severe types of multiple neuritis that cause atrophy and paralysis the prognosis is not good. The extent of injury and the character of the underlying lesions determine the prognosis. Respiratory paralysis and heart disease make the prognosis poor.

### DIAGNOSIS

The disease is usually easily recognized. Most writers agree that one should not be satisfied with the diagnosis unless the etiology is also determined. Clinically the salient features of the disease are the nerve and muscle soreness involving the distal portions of the lower extremities first, then later the upper extremities are usually involved; the characteristic pain best elicited by pressure on the involved muscle or nerve; the diminution or absence of the deep reflexes and disappearance of the superficial reflexes. Multiple neuritis is apt to be confused with tabes dorsalis, but is differentiated by the acute onset, the absence of Argyll Robertson pupils, and bladder disturbances. Optic atrophy, lightning pains, various crises and girdle sensations and the characteristic findings in the examination of the spinal fluid will easily rule out tabes dorsalis.

### TREATMENT

Our first object in the treatment should be to find the cause or primary intoxication and remove it as early as possible. Bed rest is necessary until the pain and acute stage are over. Sodium salicylate, aspirin and codeine are given for pain. Heat is a valuable adjunct for the relief of pain. A well balanced diet should be given, supplemented by vitamin B. One ounce of dried brewer's yeast is given after meals in milk or fruit juice. Liver and liver extract are very helpful in alcoholic and pregnancy polyneuritis.

### CASE REPORTS

*Case* 1—Mrs. J. R. A., 34, housewife. Has two children 7 and 2 years of age. Came to the office November 18, 1936 with a history of pain, soreness, tingling and numbness in both lower and upper extremities for 5 years. Stayed in bed at intervals. Pain practically cleared up during last pregnancy in 1934 when patient was eating well, but returned when baby was two months old. Pain was so severe in extremities, especially left side (arm and leg), that patient stayed in bed most of the time until her tonsils were removed in 1935. She felt better for some months, and then the pain gradually became worse. At her first visit to my office she stated that the pains, tingling and numbness in the upper extremities were worse than in her feet and legs as she was so fatigued that she had to remain in bed a good part of the time. Appetite was poor, ten pounds underweight, no fever, bleeding from gums. Bowels constipated, urination normal, no nausea, no vomiting, no cough, no passing of blood through bowel. *Physical examination.* A complete physical examination was done but only the essential positive findings will be given. Weight 104½ pounds, height 5 feet 4½ inches. Few carious teeth, gums red, spongy and bleed easily on pressure. Pressure tenderness over lower extremities slight, but marked over upper extremities, and soreness extending to shoulder on left side. *Laboratory findings.* Hemoglobin (Sahli) 95. Total red cell count 4,660,000. Total white cell count 5,250. Polymorphonuclear leucocytes 54, small mononuclears 42, large mononuclears 1, eosinophils 3. Wassermann and Kahn tests negative. Gastric

analysis: Free HCl 32, total acidity 56, occult blood very slight trace. Feces negative for ova or parasites, occult blood negative. Basal metabolism readings: Test 1, minus 14.3; test 2, minus 6. Mantoux test negative. Urinalysis, albumin and sugar negative. Centrifuged specimen negative microscopically.

A diagnosis was made of multiple neuritis and pyorrhea with an inadequate diet. Patient had been treated by four physicians before consulting me. She was given iron and dried brewer's yeast by mouth and liver extract 4 cc. intramuscularly every week for six doses. After she failed to gain weight or feel better in two weeks I advised an x-ray of the teeth, and an extensive pyorrhea was found, together with an unextracted root of a tooth that had been removed two years previously. This root had considerable infection around it and was removed. The pyorrhea was treated and the patient began immediate improvement. On last visit to the office March 1, 1937 she had gained 7½ pounds and felt fine, except for slight discomfort in left arm at times.

*Case* 2—W. E. H., white, male, age 36, single, occupation office work (treasurer), was referred to me January 23, 1937 by Dr. J. P. Bell, dentist, for treatment for Vincent's infection. Patient gave a history of having seen an eye specialist for sudden dimness of vision of one eye a few days before I saw him and was told he had a hemorrhage into the eye. The tongue was very red and inflamed with a thick white membrane on the sides and underneath which, when removed, caused slight bleeding or tendency to ooze. Three smears were made for Vincent's infection and all were negative. After the patient had been coming to the office a few days he admitted he had been drinking from a pint to a quart of liquor daily for the past two years and had been very irregular in his eating, many days eating two meals and some days only one meal. On this visit he had some bleeding from the rectum and he was referred to a proctologist who admitted him to the hospital. The bleeding soon stopped, the rectal condition subsided and the patient was then thoroughly examined. As the whiskey was stopped a very severe multiple neuritis of both lower extremities developed, with very intense pain. *Physical examination* revealed a well developed and fairly well nourished man, who was very nervous with but little vision in the right eye, a very red tongue with a thick white membrane on the sides and under the tongue and on the gums. Temperature normal, pulse 102, blood pressure 140/90, heart, lungs, abdomen and back negative. Lower extremities exquisitely tender to touch in toes, and calves were tender to slight pressure. Knee jerks were present. Upper extremities: grip good, no evidence of neuritis in forearms or hands. Rectal examination: internal hemorrhoids and some pruritis ani. Physical examination was otherwise negative.

*Laboratory findings.* Hemoglobin 81. Red blood cells 4,150,000. White blood cells 9,650, Polys. 69, S. M. 27, L. M. 3, E. 1. Blood Wassermann and Kahn tests were negative. Spinal Wassermann negative, cell count 1 cell. Spinal sugar 80. Blood calcium 9.8 mgms. per 100 cc. Urinalysis: albumin trace, sugar negative, microscopic—rare hyaline cast, occasional pus cell. Three Vincent's smears negative. Scrapings from bowel wall on culture grew *Monilia psilosis* in Dr. Graham's laboratory.

This patient was treated with a liberal diet high in protein, two pints of milk daily, brewer's yeast three ounces daily, liver extract 4 cc. intramuscularly daily for a few days, then 10 cc. intravenously daily for 10 days with rapid general improvement. Then 5 cc. of liver were given intramuscularly three times weekly for one month. Heat was used on the feet and legs in the form of an electric tent. Codeine and aspirin were used for pain. The patient was discharged after one month's stay in the hospital much improved but the neuritis still gave some trouble. He stayed at home two weeks and was going to the office doing a little work when one night he drank 1½ pints of whiskey which gave him delirium tremens followed by a toxic psychosis of alcoholic origin. This lasted for three weeks, causing him to be kept in a hospital for mental diseases. The patient's mental condition at present is good. His polyneuritis is much better but still gives a little trouble. His vision is apparently normal.

## COMMENT

Case No. 1 was obviously an individual who had been on an unbalanced diet for a long time with infection from the tonsils, teeth and gums. Case No. 2 was an excellent example of insufficient diet, and alcoholic polyneuritis. The vision gradually cleared up when the whiskey was stopped, so I feel that alcohol was the cause of the amblyopia. Dr. L. T. Kincannon, ophthalmologist, who examined the eye, was of the same opinion. Carroll, of New York, reports several cases of alcohol amblyopia. An interesting fact brought out by Spies was that cases who drink whiskey and eat liberal diets with vitamin B do not develop neuritis. If vitamin B and a generous diet are not taken, those who drink will develop neuritis.

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## OUT OF THE ORDINARY

By
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With the tire of routine practice there occasionally comes to the fore amusing cases that lighten the burdens and responsibilities of the day. It is such cases that have arisen in my practice that embolden me to pass them on to the profession with a strong hope that other physicians, whose experiences may far outclass those of mine, will take stock and give to our profession those cases that will excite the risible.

### MATERNAL BREECH

The expected call came at last, for my puerpera was in labor and wanted me immediately. On entering her room I found her on her knees beside her bed, with her arms and head resting on its carefully prepared surface. All the persuasion and physical force I was able to bring to bear could not budge her from her selected and fixed position. After much dilly-dallying the patient informed me that if I wanted to get the child I had better reach down and catch it. Taking the hint I did reach down with receptive hands and caught, without muffing, the catapulted babe. After applying forceps to the cord and severing it, I made a pass to the nearest bystander. This was my first breech case, but the breech was with the mother.

### PSEUDOCYESIS

This colored nullipara had longed for a baby, but not being favored by nature, or anyone else, she decided to controvert the law of fecundity by having one anyway; so I found her on her procrustean bed in the throes of imaginary labor pains. Examination revealed a movable, normal size uterus. On telling her that she was not in labor, nor was she even pregnant, she went into an hysterical fit that lasted many minutes. Being of a determined nature and not to be thwarted in her efforts, I was summoned the next day only to find the patient still in labor, but to make the matter of labor more sure she had made extensive preperations and had employed a trained nurse to assist me. To carry out the essential form of accouchement I again examined the patient, but finding matters as of the day before, I informed her that all the combined labor pains of women could not bring a child into the world in her case. In order to give her the benefit of a science that has done so much for humanity, by curing that which is incurable, I suggested that she send for a chiropractor, and wished him much success.

### DRAINED ANEURISM

A negro man, with the euphonious name of April Darby, had been under my care for many months, suffering with aneurism of the aorta. A local physician, who was anxious to study the objective and subjective symptoms of the disease, asked that I take him to see the case, so next morning we drove out to see the patient. As was my custom I greeted him with "How do you feel today April?" His reply was to sit up in the bed, but to immediately fall back with blood gushing from his mouth. The spectacle was so shocking as to cause those sitting by to scream, "They have killed him," which refrain quickly spread throughout the quarters, and I assure you that my friend and I felt more at home on reaching the city.

### ENTERTAINING CATALEPSIES

A young negro woman was in the habit of entertaining her friends each afternoon by having cataleptiform attacks, out of which nothing that far tried had aroused her. Seeing that my reputation was being discounted, I began to feel that something must be done about it, so recalling to mind the wonders of past gods, I recalled Ammon, god of Egypt, whose potentialities were so great as to inspire the pharmacologists of those days to name ammonia in his memory. Feeling confident in the after treatment of the case, I told her parents that I had a drug at the office which if inhaled during the attack a cure would be almost immediate. The next day I received

a call to come at once, as the patient was worse than ever. I placed the ammonia in my grip and on beholding the sole actor of the free shows, I poured a liberal quantity of my specific on a pledget of cotton and firmly pressed it against the "cataleptist's" dilated nostrils. The affect was astounding, for lightning, mixed with a dash of gunpowder, could not have lifted her more quickly, or higher, than my specific. Between gasps and tears running down her cheeks it was easy to see that she considered the remedy worse than the disease. The next day I stopped by my patient's home and was met at the door by none other than the patient herself, who informed me that I need not come in, as she had changed doctors—my medicine was too strong for her.

### SPECTACLES FOR SPOTS

A colored woman of ripe age hobbled into my office, and when she could get breath enough with which to speak she told me that she was suffering with short "breffness" and that everything she ate gave her the "indigestus" and that she could not sleep well. It was easy to see that there were just causes for her trouble, and on examination the valves of the heart were so diseased as to cause symptoms of decompensation. I asked her if she woke, startled, in the night, to which she replied, "I show do." I then asked if there was ringing in the ears, to which she replied, "I has dat too." I then asked if she had been troubled with specks before her eyes, to which she replied, "Not as yet, but I'se been 'tending to buy me a pair." The early termination of the case made the matter of "specks" wholly unnecessary.

### ARKANSAS TONSILS

There briskly stepped into my office a negro woman, leading by the hand her eight-year-old daughter. My surprise at seeing her was only exceeded by her statement that she had come to Montgomery for me to take her daughter's tonsils out. I told her that she had come a long ways for nothing, as I had never removed a pair of tonsils from their resting place, but my statement did not perturb her in the least, for she laconically informed me that I never would be able to say that again, as I was going to remove one pair, and that pair was in her daughter. Not wishing to betray her trust I told her to send her daughter to the hospital and I would do my best. Securing a friend specialist we met in the operating room and after my "assistant" had dissected the tonsils, he applied the guillotine and handed it to me with the command to cut and pull, which I did. A like technic on the other tonsil made the operation a great success and the patient was able to return home in a week. About two months following the operation, I received a letter from my patient's father stating that the operation had cost him considerable money, inasmuch as his daughter had grown so fat that none of her clothes, except her handkerchiefs, would fit, therefore he had to furnish her with a complete wardrobe, but that he still had enough change left with which to send me a little token of his appreciation. Within a few days I received a nice box of solid silver spoons.

### A WHOLE LOT BETTER

We all have to include among our patients a few dear old souls who delight in consulting us, but never seem able to be fully restored by our medicine, or advice. Such a soul sent for me one day, and after delivering herself of all the news and symptoms, I finally succeeded in choking her down and began to talk myself. It was clear that the only thing the patient needed was a brisk purge, which I prescribed, with the thought that I had better make it oversize. The next day I asked if the medicine had acted well to which she replied, "On the 'whole' it acted fine." Let's hope that ended it.

### GALLBLADDER SYRINGE

Early one morning, in fact, just before daybreak, I received a call to come at once, as the patient was about to die with pain. On reaching the place I could hear her wails. Asking the nature of her trouble she said that her side was killing her. On examination I found that the fistula that drained the gallbladder had closed and the organ was the size of a small orange. To my chagrin I had failed to bring my satchel, and it was a long way back home, so I decided to do a little emergency surgery by sterilizing my pocket knife and the field of operation. On entering the gallbladder, bile squirted across the room, with immediate surcease of pain. Subsequent operation by her surgeon effected a cure.

All of the above cases have been among my "ginger-cake" patients, so I shall put on a little "icing" by relating a few among my white patients.

TOILET BLADDER

My maid informed me that there was a patient in the reception room who wanted to see me at once. Asking the nature of the trouble she excitedly told me that there was a lady in their store who was in a bad fix. Following my guide with some difficulty to the store, I was placed in an elevator and conducted to the ladies' toilet. As the door was opened I stepped back on seeing a lady who was doing, apparently, a "sit-down-strike," but on being beckoned I boldly approached the lady, who informed me that her bladder had acted with a gush, but that she could not stop urinating —that she had sat there for half an hour, but that the urine continued to run. Thinking perhaps that it was a leaking bag, I asked her if she was pregnant, to which she indignantly replied, "No," explaining that she wasn't even engaged. With a flashlight, I threw its rays on the offending organs, but finding no leak the anxious patient was informed that her bladder was not acting; but this only made her anxiously ask, "Don't you hear it drivling?" Procuring a piece of cotton from my grip, I carefully wiped the parts with it, and showed it to her in its original arid state. I then ordered her to stand, and on raising the seat of the toilet showed her a leak, which I must admit sounded exactly like trickling urine. In her embarrassment and confusion she forgot to remunerate me, and on hinting that I was open to a tip, she calmly reminded me that I had rendered her no service, and that she did not feel that she was due me anything. In order to impress upon her the importance of a doctor receiving pay for his services, I told her that if she felt that way about the matter I would render a bill to the closet.

FALLING TONSILS

The mother, with her baby boy in arms, sat in a tall, cane, rocking-chair. I had been called to see her child's throat. On pressing down the tongue with a spoon the child would struggle, and stretch back farther and farther, until the center of gravity of chair, with its contents, was shifted to such extent that chair, mother, child and doctor fell to the floor. It was my misfortune to fall atop of the mother, and just at the time when her husband opened the door and was transfixed at the scenery. He was a butcher by profession, but an Italian by language, as I understood not a word that was synchronous with his wild jesticulations. Fortunately he had left his cleaver at the shop, but after the wife explained to him, in a calmer mood, the nature of the accident, his merriment was in excess of his anger, if such could be possible.

* * *

As the preachers say: "I now come to a close"; then, "This is my last thought"; and, then, "In conclusion" and, after that, "Finally," so I shall come to a close by relating a composite congenital disease afflicting, as far back as can be recalled, five generations.

SYNDACTYLISM

There sat in my office a lad, his mother and maternal grandmother—all of whom were afflicted with that strange disease, webbing of the fingers and/or feet. The boy had accessory little toes, which were removed. Within each generation there were children who were afflicted, and those who had escaped. I merely relate these cases in the concrete, inasmuch, as a full report has no place in a paper of this kind. However, they furnish enough material to remind us what naughty things are those little spermatozoa and ova. Something should be done about it.

## SULFANILAMIDE

By
J. N. BAKER, M. D.
State Health Officer
Montgomery, Ala.

Nearly a year ago a member of President Roosevelt's family was suffering from a severe form of septic sore throat, which caused the President and others much anxiety. The young man was cured by a patented German preparation described as a form of sulfanilamide.

This experience with sulfanilamide, and others equally successful, reported from various parts of the country, caused this comparatively new drug to receive considerable attention at the annual meeting in Atlantic City last summer of the American Medical Association.

"Reports come from Atlantic City, where

the recent convention of the American Medical Association was held, that the chemical name which will be most often heard within the next year or two is sulfanilamide," The Alabama Journal (Montgomery) declared in an editorial published in its issue of last June 22. "It is comparatively new, but the reports made to the medical fraternity of the final tests given the preparation indicate it is going to be a marvelous contribution to medical science. It is described as a 'magic bullet' which can be used against a host of germs and disease conditions. It is expected to prove science's most potent weapon against some of mankind's worst infectious diseases. It can be administered both hypodermically and in the form of tablets but of course must be used only under the most capable medical supervision. Let us hope the doctors may not be disappointed in their expectations of this new enemy of germs."

Reports from the American College of Surgeons, as quoted in the daily press, tell how sulfanilamide has brought recovery when used in the treatment of a number of cases of a deadly form of meningitis. Other reports tell of this drug's success in the treatment of gonorrhea, scarlet fever, pyelitis, erysipelas, childbirth fever, type III pneumonia, for which no satisfactory serum treatment has been devised, gas gangrene, and a number of other illnesses, particularly those due to the "cocci" type of bacteria.

However, even before the recent deaths attributed to various preparations containing this drug, the American Medical Association began receiving reports of bad effects from its use. Its administration in Milwaukee was followed by acute hemolytic anemia. In Chicago a patient lost the sense of sight, presumably as a result of its use. In other cities, notably New Orleans, Baltimore and New York, skin eruptions were reported as aftermaths of this form of medication. Various more or less transient and harmless results ascribed to it included acidosis, nausea, elevation of temperature, cyanosis, and jaundice.

Immediately after the newspapers reported the first of the deaths attributed to sulfanilamide, the State Health Officer sent a telegram to Dr. Morris Fishbein, editor of the Journal of the American Medical Association, as follows:

"Can deaths reported in press due to sulfanilamide be attributed to a particular preparation?"

The reply from Dr. Fishbein stated that these deaths were "definitely due" to elixir of sulfanilamide made with diethylene glycol.

Immediately upon receipt of this message, the State Health Officer issued a warning against the use of this preparation except when prescribed by a physician.

Two days later, although no deaths had been reported in Alabama as presumably due to this preparation, the State Health Officer issued a second warning as to the danger lying in the use of this drug, especially when used by the layman for self-medication.

Five deaths attributed to the drug were reported on October 23 from three Alabama communities, Eufaula, where three were reported, Headland, and Clayton. A sixth death was reported from Arab, Alabama, on October 28.

Immediately after the report came of the first of these Alabama deaths the State Health Officer sent a telegram to every county health officer in the state instructing him to take immediate steps to stop the use of this preparation in his community by personally contacting every pharmacist and physician.

Meanwhile, representatives of the Food and Drug Administration of the United States Department of Agriculture had begun the seizure of all stocks of this drug they could find.

In the light of the successful results obtained from the use of sulfanilamide prior to a few weeks ago, when it began to be widely used in elixir form, it seems unwise to condemn this product as such or to forbid its future use. To do so undoubtedly would deprive many patients of an effective means of treatment for forms of illness which may not yield to other forms of treatment. It apparently is elixir of sulfanilamide which is responsible for these tragic deaths, and not sulfanilamide per se. This distinction is one which the medical profession should keep in mind. The *efficacy* and *value* of the drug *sulfanilamide*, in certain particular infections, seem scientifically established; however, it is *potent* and its use should be directed and supervised by the trained physician.

# THE JOURNAL

OF THE

**Medical Association of the State of Alabama**

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

November 1937


## MEDICAL PROGRESS AND THE PUBLIC MIND

The sum total of our medical knowledge is what we have derived from our experiences. This would be small indeed if we had no vast body of humanity upon which to exercise our talents. We achieve skill and judgment in the treatment of appendicitis through a process of trial and error, by which we arrive at logical conclusions when we should operate and when we should not. The possession of this knowlege implies a certain complaisance on the part of the laity, as it is from *their* operative experiences that such knowledge is derived. Just how such complaisance—so necessary to our intellectual growth—is obtained is sometimes a little hard to explain. We can see now that the assent which people gave to operations for acute appendicitis was one of the great factors in popularizing abdominal surgery. The education of people on the subject went on in the daily papers, and articles on the removal of the appendix appeared quite regularly in the Sunday supplements. No doubt the description of the appendix as a worm-like or snake-like object (for years it was referred to as the "vermiform appendix") reconciled many to its removal from the human body.

Be that as it may, in the short span of five years the operation had progressed from a rarity to that of a daily occurrence. It followed that if the abdomen could be opened with impunity for one purpose so it might be opened with impunity for many others; and laparotomies for all sorts of different conditions quickly became popular.

The willingness to expend large sums of public money in the eradication of mosquito-borne diseases, the willingness to put up with the disagreeable features of quarantine against these diseases, could have been developed only when the population had been educated to the reasonableness of such procedures. There was so much that was spectacular about the early struggles with yellow fever and malaria that the public absorbed the ideas rapidly and enthusiastically.

The names of Carroll, Lazear, Reed, Agramonte and Gorgas had attained world-wide renown when the time came to send the first expedition to the Isthmus of Panama. It was the prestige of Colonel Gorgas' name, due to his brilliant work in Havana a few years before, that made his path easier in the Canal Zone. That such approval was not universal is denoted by the fact that, while Gorgas was engaged in his struggle with yellow fever, one of the members of the first Isthmian Canal Commission residing in Panama frequently took occasion to express his disbelief in the mosquito theory of disease to the great deterriment of Colonel Gorgas' accomplishments.

It is doubtful if medicine has ever encountered so remarkable a campaign as has been witnessed of late in the growth of knowledge concerning food. This campaign has been completed in the past ten years. Though we have gone through a period of great general poverty, diseases due to nutritional causes seem to have diminished rather than increased. A number of factors have played their part, but no single one has been as important as the increase in our knowledge of the virtues of proper feeding. This knowledge has been widely and generally distributed by the newspapers, magazines, and by the radio. Its distributors have been the interested and the disinterested, those who passed on knowledge for altruistic motives and those who passed it on because they had something to sell. By whatever means it has been propagated, the job has been well done. The menus of even very modest restaurants are

larded with substances filled with vitamins. Tomato juice—unheard of ten years ago—is consumed in countless gallons, orange juice, grapefruit juice, kraut juice, and so the procession moves along. It is in itself a tribute to the knowledge which the mass of people have achieved in this important subject. This educational campaign of so great importance to those practicing medicine has in the main been carried on by other agencies than those of our profession.

At times we have differed with the public as to the potency of certain medical agencies, and not always to our advantage. Forty years ago, in one of our leading medical schools, a teacher in the very forefront of medical learning of that time responded to a query by one of the students as to the value of cod liver oil.

"Yes," he said. "You could give cod liver oil, or the same amount of axle grease. They have similar therapeutic qualities."

This, at a time when many drug store windows were filled with bottles of the product under discussion. It is just as well that the public did not hear what the professor had to say. They went blithely ahead, spending their money, and time has justified them in their belief.

As a class we have been very skeptical as to the uses of sulphur, outside of its curative properties in scabies. Particularly, we have looked upon its employment in various mineral waters and springs—very popular with masses of people—with ill-concealed derision. We might better have directed some of our criticism toward our own point of view. Sulphur, we need not be reminded, is coming into its own as a therapeutic agent of great power and usefulness. Anderson and Ayres[1] point to it as the moving factor in various diets for nutritional diseases, and remark that the diet of Goldberger seems to have been efficient just in so far as it contained sulphur-like substances. They touch upon the importance of sulphur in maintaining our nutritional balance, and quote Smith[2] to this effect:

"The evidence is suggestive that a lack of cystine (a sulphur containing amino-acid) may have a specific relation to the etiology of pellagra."

They note also that Sabry[3] has successfully treated the skin lesions of pellagra with sodium thiosulphate. Our conclusions regarding the usefulness of sulphur may have been somewhat premature.

Housewives the world over fed their families liver once a week long before Whipple, Minot, and Murphy were awarded the Nobel prize. The laity at times has shown a certain stubborn, irritating confidence in its ability to select the types of remedies and foods best suited to its use.

It is evident to those interested that progress in medicine is a somewhat spasmodic affair. It advances by fits and starts, and certain procedures have a habit of turning up and enjoying popularity for a brief period and then returning to oblivion for a generation. In his "Round the Red Lamp," Conan Doyle[4] describes the elderly physician, who was so much behind the day that as things moved in their usual circle he found himself to his bewilderment in the front of the fashion.

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## TREATMENT OF MALARIA

"The introduction of new drugs for use in malarial therapy and of new data and theories regarding the best methods of treatment has made the modern treatment of malaria a subject of great importance to the practicing physician and one regarding which there is much misunderstanding and confusion of ideas. Quinine, so long regarded as the only specific for malarial infections, is recognized at the present time as of little value in prophylaxis . . . Quinine is also defective because of its variable ac-

1. Anderson, N. P.; and Ayres, S., Jr.: Light Sensitive Dermatoses, J. A. M. A. 103: 1279 (Oct. 27) 1934.

2. Smith, J. H.: Influence of Solar Rays on Metabolism, With Special Reference to Sulphur and to Pellagra in Southern United States, Arch. Int. Med. 48: 907 (Nov. pt. 2) 1931.

3. Sabry, I.: On Chemical Nature of "Pellagra Toxin" and Discovery of Thiosulphate Treatment of Pellagra, J. Trop. Med. 34: 303 (Sept. -5) 1931.
On Chemical Nature of Pellagra Toxin and Discovery of Thiosulphate Treatment of Pellagra, J. Trop. Med. 35: 164 (June 1) 1932.
Note on Pellagra, J. Trop. Med. 34: 391 (Dec. 1 )1931 (Addendum).

4. Doyle, A. C.: Round the Red Lamp, New York, D. Appleton-Century Co., 1921.

tion upon different strains and species of the malaria plasmodia; in its failure in preventing relapses in a large proportion of the infections in which it is exhibited in the usual manner; and in its lack of effect upon the gametocytes, thus failing to sterilize the carriers of the malaria plasmodia. For these reasons chemotherapists have searched diligently for remedies that might prove more powerful in one or more of these particulars, and in the modern treatment of malaria three drugs are available, i.e., quinine, plasmochin and atabrine."

In these words does Craig[1] well state the case relative to the use of quinine and the newer remedies for the treatment of malaria. The New Orleans investigator reminds us that quinine is a specific and, if properly employed, will eliminate malarial infection in the vast majority of cases. He states that, for the average malarial infection, the treatment recommended by the National Malaria Committee has given satisfactory results when conscientiously followed. This treatment consists of ten grains of quinine sulphate by mouth three times a day for three or four days, followed by ten grains once a day for a period of eight weeks. But, as every practitioner only too well knows, it is impossible to compel or persuade many patients to carry out this routine. Thus the need for something other than quinine is accentuated.

Craig holds that in the treatment of carriers plasmochin is without a peer, but warns us that it should be combined either with quinine or atabrine and only in small doses. And he warns that it can cause toxic symptoms such as abdominal colic, headache, cyanosis and respiratory failure. And he further informs us that "atabrine, a quinolin derivative, has been widely used in the treatment of malaria, and it is certainly the concensus of opinion of those who have had the most extended experience with this drug that it is the most rapidly curative one we possess and that relapses are much less frequent after its administration than after the administration of quinine." Craig says that toxic symptoms such as abdominal colic, nausea or vomiting and more or less severe nervous and mental symptoms have been reported following the administration of atabrine. And he further states that "a fair and unprejudiced review of the literature has convinced me that the prevalent opinion that atabrine produces mental derangement in many patients is not based upon fact but very largely upon 'hearsay' evidence, but that it is true that this drug should not be administered to patients having a psychotic history or in larger doses than those which have been found efficient and usually recommended. The lemon yellow color of the skin that may follow the administration of atabrine is not a toxic symptom but is due to a deposition of the dye in the skin, which eventually disappears. It is not a jaundice nor does it indicate any disturbance of the liver, as thought by many practitioners."

In the last paragraph we are told that "in conclusion, I believe that for mass treatment, where those treated cannot be personally observed, quinine should be the drug of choice, but where the treatment can be supervised, and case selection can be made, atabrine should be employed. This drug should also be used in treating those having an idiosyncrasy to quinine and in the treatment of hemoglobinuric fever, while plasmochin should be administered as recommended in order to kill gametocytes and thus prevent the infection of mosquitoes and the transmission of malaria."

When men of the experience and eminence of Craig endorse plasmochin and atabrine it can only mean that these new drugs have now definitely become a part of our therapeutic armamentarium. No doubt much yet remains to be learned concerning them but now we have three drugs for use as antimalarials, whereas until recently we had only one. And it is a commentary upon the eternally progressive spirit of medical science that the battle against malaria did not cease with the discovery of cinchona bark and the isolation of the quinine alkaloid.

1. Craig, Charles F.: The Modern Treatment of Malaria, New Orleans Medical and Surgical J., 89: 697 (June) 1937.

## *Committee Contributions*

### POSTGRADUATE STUDY

#### PNEUMONIA

Due to the prevalence of pneumonia in Alabama the Association's Committee on Postgraduate Study has selected its early

diagnosis and treatment as a subject for this year.

Early treatment of pneumonia with type specific serum is of tremendous value in hastening recovery and reducing mortality. In the early recognition of the types for which there are type specific sera of therapeutic value, there is a definite need of a diagnostic service which has not been generally available in this state. Your committee has recently arranged for such service through the laboratories of the State Department of Health. Service in pneumococcus typing will be available shortly in all branch laboratories.

In order to familiarize physicians with some of the newer ideas on the treatment and diagnosis of pneumonia, a program has been arranged to this end. This program is to be presented by Dr. J. J. Repa, Chairman of the Subcommittee on Pneumonia. Dr. Repa will discuss the treatment of the disease, a new film on the subject will be shown, and a member of the state laboratory staff will demonstrate the technique of pneumococcus typing and will discuss the service to be rendered by the laboratory.

We feel that our objective is one of interest to every doctor in the state. Our program for presentation has been thoroughly worked out and should prove very worth while. However, as the film we have is available for only a short period and as the time Dr. Repa can devote to this work is limited, it will be impossible to present our program to every county of the state. Therefore, we have selected certain centrally located counties, in which we are to give our program, under the sponsorship of the local County Medical Society. Advice will be given by letter as to the centers chosen.

Ralph McBurney, M.D., Chairman
Cabot Lull, M.D.
Clarence K. Weil, M.D.

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# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

Cooper Brougher, Acting Director

### THE WASSERMANN TEST

The name Wassermann is generally applied to any complement fixation test used in the diagnosis of syphilis. Kolmer holds that this loose application of the phrase "Wassermann test" is in error, and feels that the term should only be used when reference is made to a test conducted after the original method of Wassermann and his coworkers. However, for the purpose of this discussion we shall consider all complement fixation tests for syphilis as Wassermann tests, inasmuch as in the final analysis, all are conceded, to be modifications of the original one. The modifications of the Wassermann test which have been and are at present in use are almost innumerable. It seems doubtful if any two laboratories in the world use a technique exactly the same in all particulars. Each serologist seems to have his favorite methods, or variances, which to his mind make his individual test superior to all others. However, the general high accuracy of the test in the hands of all competent serologists points out the fact that these variances are of small importance.

Bordet, while attempting to prove his theory of the unity of complement and to refute Ehrlich's theory of the multiplicity of complement, performed an experiment with his pupil Gengou in 1901.[1] This experiment demonstrated a visible reaction in complement fixation by the use of a hemolytic system, and became known as the Bordet-Gengou phenomenon of complement fixation.

Bordet had shown previously that the addition of a small amount of normal serum to an immune hemolysin would result in the lysis of the homologous corpuscles, and that the process would not take place without the normal serum (complement). An emulsion of pest bacilli was mixed with antipest serum and a small amount of normal guinea pig serum was added to supply complement. The mixture was set aside for four hours at room temperature, then it was sought to determine whether the complement was still free in the fluid. As it was already known that the complement

1. Bordet, J. and Gengou, O.: Ann. de L'Inst. Past., 15: 289, 1901.

used could produce hemolysis of corpuscles with a homologous amboceptor, a test for free complement was made by the subsequent addition of anti-rabbit hemolysin and rabbit corpuscles to the mixture. Hemolysis did not occur, showing that the complement had been fixed and was not free to react with the hemolytic system introduced. When normal serum was substituted for the anti-pest serum, hemolysis did occur, showing that the complement was not fixed by the pest antigen in the absence of its specific antibody. This demonstration of visible evidence of complement fixation, known as the Bordet-Gengou phenomenon, provides the basis of all complement fixation tests.

Other workers were greatly interested in this phenomenon and much experimental work was done using it. Widal and Lesourd[2] applied the reaction to the diagnosis of typhoid fever shortly after the discovery by Bordet and Gengou. This was the first practical and direct application of the complement fixation reaction in diagnosis. Neisser and Sachs[3] continued the studies of Gengou on protein antigens and amboceptors, and advocated the complement reaction as a fine and delicate method of control on the precipitin test for the detection of minute traces of proteins, as in the recognition and diagnosis of blood stains. Encouraged by these results, Wassermann used the method in an attempt to discover in the blood serum, during the course of an infection, the bacterial proteins derived from the micro-organism. Practical application proved that these proteins did not exist free in the blood in sufficient amount to give a definite complement fixation. In 1905, Wassermann and Bruck[4] found that bacterial extracts might be substituted for emulsions of bacteria, and that extracts of diseased organs containing a large number of bacteria or of bacterial products could be employed. Accordingly, these two workers made aqueous extracts of tuberculous lungs and glands and used these as antigens in a study of complement fixation in tuberculosis. With the identification at this time of the spirochete of syphilis by Schaudinn and Hoffman, this discovery aroused great interest in the disease. Consequently, Wassermann and Bruck, in cooperation with Neisser, who was doing work on experimental infection of monkeys with *T. pallidum*, put into use their previous discovery on the use of extracts of diseased tissue as antigen, using sera from Neisser's experimentally infected monkeys. The antigen used was an aqueous extract of the liver of a syphilitic fetus which showed the presence of numerous spirochetes. Wassermann, Neisser and Bruck published a report of their work on May 10, 1906; just two weeks later a similar report on the same subject was published by Detre.[6] Detre used as his antigen an aqueous extract of luetic papules, liver, pancreas, etc., and used human cases of syphilis in his study.

In 1906, Wassermann and Plaut[7] studied the cerebrospinal fluids of 41 cases of paresis and obtained a positive reaction in 32. In 1906, Wassermann, Neisser, Bruck and Schucht[8] applied the complement fixation test to a large number of cases of syphilis in Neisser's clinic. Aqueous extracts of various syphilitic organs were used as antigens. They secured only 19% positive reaction from 257 cases in all stages. This was discouraging.

At this time it was generally considered that the complement fixation reaction in syphilis was due to a specific antigen—antibody reaction. However, in 1907 it was shown by Weygandt,[9] and Marie and Levaditi, that extracts from normal organs which did not contain the spirochetes of syphilis were even more satisfactory antigens than the aqueous extracts of syphilitic organs which had been used previously. These results were verified by other workers, and Landsteiner and Stankovic[10] demonstrated that alcoholic extracts of normal guinea pig heart were even more satisfactory than either as an antigen. This indicated that the antigenic principle was so-

2. Widal and Lesourd: Comp. rend. Soc. biol., 53: 841, 1901.

3. Neisser and Sachs: Berl. klin. Wchn., 42: 1388, 1905.

4. Wassermann and Bruck: Med. Clinik., 55: 1905.

5. Wassermann, Neisser and Bruck: Deut. med. Woch., 19: 1906.

6. Detre: Wien. klin. Woch., 19: 21, 1906.

7. Wassermann and Plaut: Deutsch. Med. Schn., 32: 1769, 1906.

8. Wassermann, Neisser, Bruck and Schucht: Deut. med. Wech., 55: 1906.

9. Weygandt: Munch. med. Wchn., 54: 1557, 1907.

10. Landsteiner, Muller and Potzl: Wein. Klin. Wchn., 20: 1421, 1907.

luble in alcohol, and many workers began investigations on various lipoids and their relationship to the reaction. Porges and Meier[11] claimed that a 1% solution of commercial lecithin could be used as an antigen with success. Browning and Cruikshank[12] found that the addition of small amounts of cholesterin to any syphilitic antigen improved the antigen.

All these various findings and statements confused the issue greatly at that time, and as tests were being made by unskilled persons whose results were indifferent the Wassermann reaction suffered much criticism. It was known that the Wassermann reaction was not specific, in the sense that the antigen was not specific, and that the antigen was of a lipoidal nature. Antigens made of *T. pallidum* were found to be of no value by Noguchi, Craig, Nichols and others.[13] Alcoholic extracts of syphilitic livers were found to be inferior to cholestrinized extracts of normal heart muscle. Positive results were said to have occurred in frambesia, leprosy, malaria, pellagra, pneumonia, scarlet fever, typhoid fever, malignant tumors, and practically every other disease known to afflict humanity.[14] All of this served to swing medical opinion away from the test, and it is only within the last 20 years that the limitations of the test have been properly recognized and that the test has come into its proper place in the scheme of diagnostic methods.

Today we have no real knowledge of the mechanism of the Wassermann reaction. The test originally was erected on sound logical grounds. This assumption was shown to be false, and now in practice we find that the test is of remarkable accuracy. Sufficient work has been done to show that the specificity of the test is dependent on the presence of a syphilitic antibody, and that the presence of *T. pallidum* in the extracts used as antigens is not necessary.

Due to the fact that the test requires several reagents in varying proportions, and to the fact that the antigen used is not biologically specific, there have been numerous modifications adopted and practised. The test is capable of a considerable range of adjustment. It can be made highly sensitive, but when adjusted in this direction there is an inescapable risk of the occurrence of non-specific complement fixation, and false positive reactions. When the reagents are adjusted in the other direction there is a possibility that sera which react weakly, such as those from early primary cases and some treated cases, may react negatively. There is a constant striving for specificity without the sacrifice of accuracy. For all practical purposes this specificity and accuracy is obtainable by the use of correctly prepared reagents and an adequate system of controls in the hands of skilled, properly qualified, serologists. Reports should be interpreted in the light of clinical findings, as should all laboratory reports.

It is impossible to review, or present, for the purpose of this paper all of the many modifications of the test which are in use today. Serious attempts have been made to standardize the test. All serologists are in hearty accord on the necessity for such a step; but when it seems that in such a standardization much of each individual's personal pet techniques will be discarded, then interest is lost. There is government regulation of the complement fixation test in Germany and in England. In Germany an official test technique has been laid down, and strict regulations govern the testing antigens and amboceptors in use. In England minimum standards have been set and a choice is allowed of five methods.

Regardless of the method used, there are certain factors essential to the performance of a satisfactory complement fixation test. The technique of the test is complicated and should only be attempted in the larger better equipped laboratories by persons with the proper educational background and with adequate training and experience. The glassware used should be chemically clean, and should be accurately graduated for the measurement of the reagents used. The procedure should be uniform from day to day. The patient's serum for examination should be free from contamination or hemolysis. Complement should consist of the pooled sera of at least two healthy male guinea pigs. This reagent should be kept properly refrigerated and should be pro-

11. Porges and Meier: Berl. Klin. Woch. 15: 1908.

12. Browning and Cruikshank: J. Path. and Bact., 16, 1911.

13. Zinsser: Resistance to Infectious Diseases, 4th ed., p. 205, 1931.

14. Kolmer: Infection, Immunity and Biologic Therapy, 3rd ed. 425, 1927.

tected from undue agitation. The antigen should be prepared and diluted in a uniform manner. The red blood cells used should be of a uniform density, and should not be unduly fragile. The reagents should be mixed in the proper order. Each serum should be tested with and without antigen for control purposes; controls on the antigen-complement mixture, on the complement-amboceptor mixture, and on the red cell-salt solution mixture should be included in each group of tests made. A known positive and a known negative serum should be included in each group of tests for comparative purposes and also to act as controls. The hemolytic system should be carefully adjusted, and the temperature and time of incubation should be uniform. Spinal fluids, and other body fluids, may be tested by this method, but these fluids should not be inactivated and should be used in larger amounts in the tests.

In yaws (frambesia), a disease caused by a spirochete practically indistinguishable from *T. pallidum*, it may be expected that reactions will occur. There is indication in the literature that in certain rare cases reactions may be obtained with blood from persons suffering from malaria, leprosy and tuberculosis, even when syphilis is not present. It is not desirable that specimens of blood from persons with fever, or from persons under the influence of alcohol or an anesthetic, be tested. If definite fixation is obtained in properly controlled tests, there is strong presumptive evidence of syphilis. The interpretation of a partial reaction depends a great deal on the sensitivity of the test. In general it should not be considered significant unless borne out by clinical evidence. The failure to secure a positive reaction does not necessarily rule out the disease. A reaction is not ordinarily obtained under 3-6 weeks after the appearance of the initial lesion, and in a small percentage of cases of latent or tertiary syphilis there is a failure to react. Since the test is based on a reaction with a non-specific antigen it is necessary to interpret all results in the light of clinical findings and the history of the patient.

The complement fixation test for syphilis (Wassermann test) furnishes information that in a great majority of cases is in complete accord with clinical findings. The test is being used more and more throughout the world in the diagnosis of syphilis, and is probably the most valuable of all laboratory tests to the clinician.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### MATERNAL CARE IN ALABAMA

The Committee on Maternal and Infant Welfare of the State Medical Association recommended at the meeting held in Birmingham during last April that, "in order to make postgraduate instruction available to the physicians in general practice your Committee recommends that the state employ an all-time obstetrician to devote his entire time to postgraduate work and clinical supervision, teaching, etc." Acting upon this recommendation and using Maternal and Child Health Funds allocated to Alabama by the Children's Bureau for expenses incurred, the State Health Officer has secured the services of a successful obstetrician who has been assigned to duty with the Bureau of Hygiene and Nursing.

Dr. Eva Dodge is the obstetrician who has been chosen as chief of the Division of Maternal Hygiene in the State Department of Health. Her program of activities will be given to the physicians of the state in detail when visits are made to the individual counties. She will work closely with the members of the county medical societies. The program will begin in those counties where maternity clinics are being held. Dr. Dodge will visit these clinics and use them as centers for the promotion of education in maternal hygiene.

Medical conferences relating to obstetrics and the problems encountered will be held at these clinic centers for the purpose of bringing attention to the medical profession the importance of adequate care in infection, eclampsia, hemorrhage, and intercurrent disease covering the outstanding causes of maternal deaths. Emphasis will be placed upon the prevention of these conditions.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### DIPHTHERIA AND IMMUNIZATION

October and November of each year are the months of high incidence of diphtheria in Alabama and it is at this time that par-

ents regret the procrastination or neglect that left their child unprotected against this disease. It is true that a certain number of cases develop among children who have had some form of immunization, but the vast majority of cases are of infants and older children who have not been given the benefits of toxoid.

The original conception of diphtheria immunization was that a child once protected was immune for life. Unfortunately this is not true, for most children will gradually lose some of their protective antitoxin unless it is reproduced by the body in response to some stimulus. This stimulus may be in the form of an encounter with the diphtheria bacillus itself or by any of the artificial agents recommended.

Here in Alabama we have been using alum-precipitated toxoid since its introduction in 1932 and today this is the most widely used agent throughout the United States. Experimental evidence is convincing that alum-precipitated toxoid is the best antigenic agent yet found. The question, of course, remains whether one dose of this product is to be preferred to two or three doses of this or some other agent. Volk and Bunney, working in Saginaw County, Michigan, have shown that one dose of alum-precipitated toxoid is equal to, or better than two doses of fluid toxoid, given at an interval of three weeks, as measured by the antitoxic response of children without any previous antitoxin in their blood. At the end of a year's interval the group on alum-precipitated toxoid was still superior to that on fluid toxoid.

The practical consideration is the prevention of diphtheria. A study of all cases of diphtheria occurring in Alabama as to their previous history of immunization is being made and future recommendations will be made on the basis of our experience. The administrative advantages of a single injection over a two- or three-dose method are obvious, but field experience will be the final criterion.

## THE INDIGENT PATIENT WITH SYPHILIS

How is the indigent patient with syphilis faring in your county? Is he allowed to go unmolested and unhampered in his nefarious work of spreading syphilis? Or is he given one or two injections and then thrown out onto an unsuspecting public? Unless every infectious case of syphilis is given the minimum of treatment to control communicability, syphilis will not be controlled. Infectiousness is just as important in the indigent as it is in the millionaire. Syphilis knows no castes or social groups. But sometimes it knows the indigent better than other groups because it has for its support ignorance, indifference, dirt, poverty and idleness.

Many physicians in the state do not like to have their waiting rooms cluttered up with indigent patients with veneral disease. These physicians do not encourage such infected, poor persons in their offices. They do not treat them at all. Other physicians give this type of patient a few injections but do not encourage continuity of treatment. A few physicians treat their indigent patients just as well as their pay patients.

The establishment of free or part-pay clinics in the counties would be a beginning, at least, toward solving the problem of indigents with syphilis. What is your county doing?

## BUREAU OF SANITATION

G. H. Hazelhurst, C. E., M. C. E., Director

### CONDITIONING OF PUBLIC WATER SUPPLIES

IN REFERENCE TO DISSOLVED CHEMICALS—HARDNESS

The public demand for chemical conditioning of water supplies continues to increase. A clear sparkling water as it comes from its original source is not sufficient. Taste and odor removal, and elimination or minimizing of objectionable corrosive, staining and hardness qualities are usually desired in part or in full. When considered practical by the owner and when the cost is not prohibitive, the necessary corrective treatment is usually applied.

Hard waters are objectionable for both household and industrial usage. When a municipal supply is not softened, it results in an added expense for soap and other preparations and equipment for softening, including individual softeners. In the case of homes, cisterns and double plumbing systems are sometimes used, to furnish a soft water. In the latter case, a more important factor than cost to be considered

is the possibility of a dangerous or unsafe supply being resorted to. In addition to the cost and safety factors involved many inconveniences are encountered. Anyone who has used hard water is familiar with the scale formed in kettles, hot water boilers, and piping; also, the unsightly condition caused by insoluble soap collecting and forming "rings" on the sides of wash basins, bath tubs, etc., in the form of curds.

Fortunately, the public water supplies of Alabama as a whole are relatively soft. A small percentage of the communities have supplies which might be termed "hard." The majority of them enjoy waters generally considered to be soft or moderately hard.

Hardness is largely due to one or all of four mineral compounds, which are ordinarily known as limestone, magnesite, gypsum, and Epsom salt. These compounds are referred to technically as calcium carbonate, magnesium carbonate, calcium sulphate and magnesium sulfate, respectively. Chlorides and nitrates of calcium and magnesium are also sometimes responsible.

Hardness is always expressed in terms of calcium carbonate (limestone) either in parts per million (pounds of limestone per million pounds of water) or in grains of limestone per gallon of water. The terms are interchangeable since 1 grain per gallon equals approximately 17 parts per million.

Waters having less than 50-75 p.p.m. of hardness are generally considered soft. Those having 75-150 p.p.m. of hardness are usually considered as moderately hard, but not hard enough to interfere with its use for most purposes or to cause much public demand for water softening. Hardness above 150 p.p.m. is noticed by most everybody. Waters containing above 200 p.p.m. of hardness have been termed "hard" and those above 300 p.p.m. "very hard." In the latter ranges the water may be the cause of families resorting to unsafe cisterns or shallow wells where they are not able to install household softeners.

Merely heating most hard waters causes considerable precipitation. As a water softening process, however, this has been used economically in only a limited number of cases. The three general methods now being used in municipal water softening are known as the "lime-soda process," the "zeolite process," and the "lime-zeolite process."

Dr. Clark, of England, discovered in 1841, that "limestone" hardness could be largely removed from water by the addition of lime. Later the Clark-Porter, or "lime-soda process" for removing both the "limestone" and other forms of hardness was discovered. These processes depend, in general, upon an insoluble precipitate being formed between the chemicals introduced and those in solution—the latter having been dissolved by the water as it passed through the soil or rock. The insoluble particles formed may be settled and filtered out. This method often requires "excess alkali," or lime treatment. When this is necessary, additional treatment with acid of some sort is used in order to produce a soft water of satisfactory chemical content.

The zeolite, or "base exchange" process, did not gain recognition as a municipal softening method until about twelve or fifteen years ago. The success of this process has been due largely to the increased efficiency of modern zeolites and the fact that salt used for regenerating purposes now sells at a figure that brings it within the range of the prevailing prices of other water softening reagents.

This process might be described briefly as follows:

Zeolites consist of certain complex compounds which possess the property of base exchange; that is, the sodium of a zeolite compound is exchanged for the calcium or magnesium of the hardness compounds as the water passes through the zeolite bed. The result is the production of a soft water. The zeolites are prepared in granular form and used instead of sand in ordinary filters. The zeolite softener is regenerated by passing an ordinary table salt solution (sodium chloride) through it. The reaction here is the reverse to that outlined above.

In some instances it has been found more economical to combine lime softening and zeolite softening. This is known as the "lime-zeolite process."

The first municipal water softening plant in Alabama which this department has record of was constructed in a North Alabama town in February of this year. The waterworks project, of which it is a part, was constructed through the aid of the Public

Works Administration at a total cost of $28,038.00. The softening plant, which cost $5,273.30, consists of zeolite softening and regenerating equipment, pumping and chlorinating equipment, a lime feeder, laboratory control or chemical testing apparatus, pump building, and clear well. Operating costs are not yet available.

The capacity of the plant is 40,000 gallons per day. The hardness of the raw water is decreased from approximately 200 p.p.m. to 70 p.p.m., or a reduction of approximately 65%. To obtain this result only three-fourths of the water is passed through the softener, the remaining one-fourth is by-passed. All water receives lime treatment to eliminate the free carbon dioxide gas present in the raw water for the purposes of preventing possible corrosion of the water mains and pipes and resulting "red water" troubles.

Public demand played a large part in securing a softening plant for this town. The mayor advised that a majority of the customers promised to subscribe only if the water was softened. Otherwise, they threatened to use cisterns and shallow wells.

The engineers of the State Health Department aided the consulting engineers and the municipal officials in arriving at the proper plant design and in placing the plant in operation upon its completion. The chemical treatment afforded here will, no doubt, be worthwhile from a public health standpoint due to a more general use of the water by the citizens of the town.

T. H. M.

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Cold Vaccines—Until immunologists can provide us with a vaccine or serum directly to combat the virus and the incidence of the common cold, we possibly shall have to be satisfied with a half-way attack on the acute respiratory diseases in general through the use of vaccines against the well known secondary disease producing bacteria; in so doing we may help to prevent complicating infections and indirectly offset the supposed virulence stimulating action of the virus on these bacteria. To the extent that such vaccines reduce length of disability and absence from work, they apparently may be of some value in the industrial health program. While no one procedure alone, such as the use of vaccines, should be relied upon entirely to build resistance against colds, a broad program of preventive treatment should be encouraged particularly among cold-prone employees, in cooperation with their family physicians.—*Bristol, Am. J. Pub. Health, October* '37.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 | | Estimated Expectancy |
|---|---|---|---|
| | August | Sept. | Sept. |
| Typhoid | 67 | 47 | 101 |
| Typhus | 73 | 76 | 38 |
| Malaria | 765 | 839 | 1320 |
| Smallpox | 18 | 2 | 1 |
| Measles | 15 | 9 | 26 |
| Scarlet fever | 25 | 63 | 116 |
| Whooping cough | 99 | 95 | 75 |
| Diphtheria | 48 | 116 | 261 |
| Influenza | 14 | 28 | 33 |
| Mumps | 51 | 30 | 15 |
| Poliomyelitis | 13 | 15 | 10 |
| Encephalitis | 1 | 2 | 3 |
| Chickenpox | 37 | 4 | 7 |
| Tetanus | 4 | 4 | 5 |
| Tuberculosis | 268 | 222 | 288 |
| Pellagra | 18 | 15 | 36 |
| Meningitis | 18 | 7 | 5 |
| Pneumonia | 51 | 76 | 60 |
| Syphilis | 1346 | 1533 | 221 |
| Chancroid | 11 | 13 | 5 |
| Gonorrhea | 358 | 425 | 192 |
| Ophthalmia neonatorum | 1 | 0 | 1 |
| Trachoma | 0 | 0 | 1 |
| Tularemia | 0 | 2 | 0 |
| Undulant fever | 8 | 3 | 2 |
| Dengue | 1 | 0 | 0 |
| Amebic dysentery | 0 | 1 | 0 |
| Rabies—Human cases | 1 | 0 | 0 |
| Positive animal heads | 58 | 75 | — |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

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# *Medical News*

(*Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.*)

Fall meeting of the Southeastern Division of the Association was held at Mitchell Dam, October 14, under the vice-presidency of Dr. C. P. Hayes, Elba. Essayists were Drs. E. M. Mason, Seale Harris, Jr., J. R. Garber and Neal Andrews, Birmingham; and Dr. F. W. Riggs of Montgomery.

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The first West Coast meeting of the American Academy of Orthopedic Surgeons will be held on January 16-20, 1938 at the Hotel Biltmore, Los Angeles. Special trains will be run with stop-overs at Sante Fe, the Grand Canyon, San Francisco and other points. For further information write to Robert L. Lewin, Hotel Biltmore, Los Angeles, California.

* * *

The American Board of Obstetrics and Gynecology announces that the next examinations (written and review of case histories) for Group B candidates will be held

in various cities of the United States and Canada on Saturday, February 6, 1938. Application for admission to these examinations must be filed on an official application form in the office of the Secretary at least sixty days prior to these dates.

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire Board, meeting in San Francisco, California, on June 13 and 14, 1938, immediately prior to the meeting of the American Medical Association.

Application for admission to Group A examinations must be on file in the Secretary's office before April 1, 1938.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, (6), Pa.

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The Southeastern Branch Society of the American Urological Association met at the Tutwiler Hotel, Birmingham, November 5 and 6. Committee on Arrangements was composed of Drs. Charles F. Lewis, Raymond R. Callaway and Jarratt P. Robertson.

Dr. J. U. Reaves, Mobile, is a member of the Executive Committee of the Branch.

* * *

The annual scientific meeting of the Georgia Pediatric Society will be held in Atlanta on Thursday, December 9. Among the guest speakers will be Dr. Ralph S. Muckenfuss, Director, Department of Health, Bureau of Laboratories, New York City; Dr. Priscilla White, Attending Physician, Deaconess Hospital, Boston, Mass.; and Dr. Joseph Brennemann, Professor of Pediatrics, University of Chicago, and Chief of Staff, Children's Memorial Hospital, Chicago, Ill.

* * *

The Mississippi Valley Medical Society offers a cash prize of $100.00, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine. Entrants must be ethical licensed physicians, residents of the United States and graduates of approved medical schools. The winner will be invited to present his contribution before the next annual meeting of the Mississippi Valley Medical Society (September 28, 29, 30, 1938), the Society reserving the exclusive right to first publish the essay in its official publication—the Radiologic Review and Mississippi Valley Medical Journal. All contributions shall not exceed 5000 words, be typewritten in English in manuscript form, submitted in five copies, and must be received not later than May 15, 1938. Further details may be secured from Harold Swanberg, M. D., Secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Building, Quincy, Ill.

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Mr. C. P. Loranz, Secretary-Manager of the Southern Medical Association, completed on October 6th twenty-five years of service with the Association. Mr. Loranz said, in beginning another year's identification: "As I begin on a new year of service, starting the first day of the twenty-sixth year, I pledge anew to the Southern Medical Association the best there is in me. It is my purpose always to give my best. I shall continue to try to be fair and just, impartial and conscientious. I covet the confidence, the esteem and the approbation of those whom I am privileged to serve, the physicians in the South as represented by the membership of the Southern Medical Association."

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The School of Medicine of Tulane University calls attention to the fact that intensive graduate medical instruction will be offered during the week November 22 through November 27. Each forenoon, except Thursday, Thanksgiving Day, will be devoted to dry clinics in surgery and its branches and dry clinics in medicine and its branches. The afternoons, except Thursday and Saturday (Tulane-L. S. U. football game) will be given over to fifteen minute lectures covering the whole field of medicine and surgery. Five minutes following each talk will be devoted to questions and answers. The evenings will be devoted to lectures on special topics. While the faculty of the School of Medicine will give most of the clinics and addresses, there will also be several prominent guest speakers.

These short, intensive courses are proving themselves of more and more value as postgraduate medical instruction.

A nominal fee of $5.00 will be charged for registration.

Detailed program will be furnished on request.

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The Commonwealth Fund believes the following release will be of interest to the members of the Association. Hospitals for rural communities and postgraduate courses for Alabama physicians are subjects that have been discussed with the Fund by the State Health Officer.

The opening of the North Mississippi Community Hospital at Tupelo, Mississippi, on October 3rd, gives the northeastern part of this state a modern, fireproof, well-equipped 50-bed hospital held in trust for the public, open to all qualified physicians and designed to serve the sick without discrimination.

This is the eighth such hospital to be built with the aid of the Commonwealth Fund of New York, which is now undertaking to provide one new hospital each year for a predominantly rural community which will agree to meet its share of costs and to run the institution in accordance with generally accepted standards. The ninth in the group is now under construction at Ada, Oklahoma, and the tenth has been awarded to the community centering in Provo, Utah.

The Fund began this project in 1926 as an experiment in meeting the need of rural communities for better medical and other health services. It was known that adequate hospital facilities were lacking in many rural districts, that recent graduates from medical schools were not entering rural practice in proportion to local needs, and that in spite of substantial progress in some parts of the country, health services in rural areas were not so well developed as those usually found in cities. It was assumed that the presence of well planned and well conducted hospitals would to some degree correct this situation, and an experience in half a dozen different states indicates that the hope was justified.

The present plan is to aid in establishing hospitals having a capacity of between 25 and 50 beds and easily accessible to a rural community having a population large enough to make good use of such accommodations and capable of meeting operating costs. The hospital may either be a totally new institution, or may replace existing facilities which are clearly inadequate. The Fund furnishes plans, specificatons, and architectural supervision for the construction, and not less than $200,000 as a contribution toward capital costs. It advises in the organization of the hospital corporation and the medical staff, offers assistance in meeting the administrative problems of the early years and provides a number of fellowships for postgraduate study by members of the medical staff.

Communities needing a 50-bed hospital are required to raise from $40,000 to $60,000 for their share of the capital cost and must provide in addition a site (with service connections) and from $10,000 to $15,000 to meet the deficit of the first year's operation. Ownership and administrative responsibility are lodged in a local corporation, organized not for profit, which contracts with the Fund to operate the hospital in agreement with specified standards. These standards are such as to guarantee its integrity as a community institution and to justify its approval by the American College of Surgeons.

Hospitals founded under this program are now operating in Murfreesboro, Tennessee; Farmville, Virginia; Glasgow, Kentucky; Farmington, Maine; Wauseon, Ohio; Beloit, Kansas; and Kingsport, Tennessee.

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# *Book Abstracts and Reviews*

**The Dynamics of Therapy.** In a Controlled Relationship. By Jessie Taft, Fellow in Philosophy; Case Supervisor of Foster Home Department, Children's Aid Society of Pennsylvania; Special Instructor Personality Problems, Pennsylvania School of Social and Health Work. The Macmillan Company, Publishers. New York City. 1937. 296 pages. Cloth. Price $2.75.

Although "The Dynamics of Therapy" by Jessie Taft is primarily a discussion of therapy as exemplified in social case work, it offers a stimulating challenge to anyone who is interested in the wholesome development of human relationships. Doctor Taft gives keen recognition to the individual will and graphically compares the individual's response to each present, immediate situation with his response to the total process of living. In attempting to help individuals gain within themselves a balance which will give them the courage to face life as it is, positively instead of negatively, Doctor Taft is alert to certain limitations as well as certain responsibilities of the therapist. The position in which the therapist finds herself is not one of passivity, but one of intelligent activity of attention in which she exerts no compulsion beyond that needed to maintain her own integrity in the situation. Doctor Taft has presented for us a forceful, vital study, the effect of which will be far reaching and significant in all fields touching on human relationships.

B. McC.

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**Obstetrics For Nurses:** (Eleventh Edition). By Joseph B. DeLee, A. M., M. D., Professor of Obstetrics and Gynecology, Emeritus, University of Chicago; Consultant in Obstetrics, Chicago Lying-in Hospital and Dispensary; Consultant in Obstetrics, Chicago Maternity Center; and Mabel C. Carmon, R. N., Chief Supervisor and Instructor in the Birthrooms, Chicago Lying-in Hospital and Dispensary. Eleventh edition, revised and reset. 659 pages with 292 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $3.00 net.

Forty-five years' experience as a teacher of nurses and medical students has given Doctor DeLee certain fundamental principles of teaching which have justified his reputation as one of the outstanding teachers of obstetrics in this country. Doctor DeLee knows that the inexperienced nurse or student is unable to select from a mass of conflicting theories and methods of treatment the one best suited for an individual case. Doctor DeLee, therefore, describes first the fundamental principle of each subject and then presents one method of treatment for dealing with it.

In the current edition Doctor DeLee has the as-

sistance of Miss Mabel Carmon, who, through her experience as supervisor and instructor in the birthrooms of the Chicago Lying-in hospital, has done much to make the method of presentation more suitable for nurses. The scientific side of the subject, however, has not been neglected, the chapters dealing with the following subjects being considerably enlarged: prenatal care, postnatal care, anesthesia, hospital technique, diseases of pregnancy, abnormal mechanics of labor, the treatment of puerperal infection with the Elliot machine and reproductive endocrinology. The chapters dealing with delivery room care is unequalled in any text, the student nurse being trained to recognize an emergency and to handle it intelligently. Details of home obstetrics are also included so as to enable the nurse to work under conditions that are not ideal.

The questions at the end of each chapter are of considerable assistance both to the student and to the instructor. The illustrations which were originally good have been supplemented by new and better ones.

This is an ideal text for student nurses and for those especially who wish to devote most of their time to obstetrical nursing.

A. E. T.

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**Concepts and Problems of Psychotherapy.** By Leland E. Hinsie, M. D., Professor of Clinical Psychiatry, College of Physicians and Surgeons, Columbia University, Assistant Director, New York State Psychiatric Institute and Hospital. Columbia University Press, Morningside Heights, New York City. 1937. Cloth, 199 pages. Price $2.75.

Hinsie describes in his book the various methods of psychotherapy, especially psychoanalysis as propounded by Freud and the psychobiologic methods of Meyer. There is no attempt to give detailed descriptions or case illustrations but rather to deal with broad principles. The author also makes no attempt to suggest the superiority of any one type of psychotherapy but he points out the fact that psychoanalysis requires so much time and expense that it can be available only to a limited number of well-to-do patients.

As a base line for future comparisons Hinsie presents a figure between 35 and 45 as the recovery or improvement rate of patients in mental hospitals. Figures to indicate the therapeutic value of various psycho-therapeutic measures are not available but the author has given a basis for computing such values.

Purchasers of this volume must not expect practical information. This book is primarily a philosophical guide or a stimulus to research workers.

C. K. W.

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**Shadow on The Land.** By Thomas Parran, M. D., Surgeon General of the United States Public Health Service. Reynal and Hitchcock, Publishers, 386 Fourth Avenue, New York. 301 pages, illustrated. 1937. Cloth. $2.50.

For the first time since the World War syphilis has begun to emerge from obscurity to the bright light of scrutiny. It has always been a star actor in the cast of communicable diseases but its acting has been hidden by the shades of smugness, taboos and prudishness. These shades are gradually being lifted and the bright spotlight is being thrown on the diseases due to the untiring efforts of Dr. Parran to enlighten the public. "Shadow on The Land" may be considered as the sequel to the original articles on syphilis that appeared in some of the more popular periodicals.

This sequel in the drama of syphilis is expertly told. The reader is carried along with such compelling force that when the book is closed physician or layman cannot help but feel that syphilis is a problem of national import. The opening chapter, "What is Syphilis," might be considered as the prologue for it gives the general facts about the disease and why syphilis has become the first public health objective of the venereal diseases.

As the drama unfolds the early beginnings of syphilis are told. How the European white man acquired it from the American Indians and spread it throughout the civilized world. "Syphilization and Civilization go Hand in Hand." The problem is presented and the methods of control in the different European countries are shown. In many European countries syphilis has declined, in the Scandinavian countries the decline has almost been a toboggan slide, whereas, in America, syphilis remains in the stellar role and quite unmolested as the grim reaper. Many of the whys of this continued stardom are discussed and methods of control are shown. The last chapter gives good advice to the patient with syphilis and to those who are not infected.

As the curtain is rung down on this drama of syphilis, one feels that, as the popularity of "Shadow on The Land" spreads, syphilis may truly be the next great plague to go.

W. H. Y. S.

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**Physical Diagnosis.** By Don C. Sutton, M. S., M. D., Associate Professor of Medicine, Northwestern University School of Medicine. The C. V. Mosby Company, St. Louis, Mo. 1937. Cloth. 495 pages. Price $5.00 net.

In this excellent volume Dr. Sutton has made a distinct contribution to the facilities at our disposal in teaching medical students the art of physical diagnosis and has fulfilled a longstanding need for a concise, clearly written text on this important subject.

The structure of the book and its many beautiful text illustrations and color plates well reflect the author's appreciation of the importance of visual perception in the teaching of physical examination. Two hundred and ninety-eight text illustrations and eight color plates richly endow the book throughout, rendering it both a source of pleasure and of educational value to the reader.

The weakest point in physical diagnosis, states Dr. Sutton in the introductory chapter, is the fact that it fails to impress the student with the normal. The interest of the student is maintained by the study of disease conditions and he is not interested in the acquisition of what to him is uninteresting information. The demonstration of two patients, one of whom shows the normal findings and the other the changes produced by disease, serves to illustrate to the student the importance of both. Theoretically, one can learn the normal by constant practice, but nothing serves to give so clear a picture as contrasting conditions observed simultaneously. To learn physical diagnosis, then,

the student should acquire, first, a knowledge of certain anatomic facts through reading or through lectures; second, and most important, he should have constant practice in the examination of the human body throughout student days and throughout the rest of his life. Even after years of practice, states Dr. Sutton, each succeeding year brings the satisfaction of having increased one's proficiency in the art.

Chapter two, written by Irving S. Cutter, is devoted to the history of physical diagnosis and acquaints the student with the handicaps under which the earlier physicians worked in an effort to make correct diagnoses and gives the student of today a fuller appreciation of the endowments of these men which we are so readily inclined to take for granted.

Chapter six, entitled examination of the chest and covering ninety-six pages, is exceptionally well done and describes in detail the various signs elicited in the various diseases of lungs and pleura, with x-ray plates and photographs illustrating various stages of tuberculosis, lung abscess, atelectasis, pneumothorax, foreign body, encapsulated empyema, calcification of pleura, effusion, etc. Innumerable diagrams are used to demonstrate the normal positions of viscera in relation to one another.

Chapter seven, the heart, comprising 152 pages, is likewise more than amply illustrated and contains, in addition to a description of ordinary methods of diagnosis, a treatise on the electrocardiogram and a short article on x-ray of the heart both of which will be found invaluable in diagnosis of cardiac lesions.

While Dr. Sutton has intended the book primarily for medical students, a review of this splendid work would amply reward any physician who would take the time to scan its pages.

J. J. R.

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**The Business Side of Medical Practice.** By Theodore Wiprud, Executive Secretary of the Medical Society of Milwaukee County; Lecturer in Medical Economics at the Marquette University School of Medicine. 177 pages with 21 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth. $2.50 net.

There are many books written by doctors for laymen, but few are written by laymen for doctors, particularly when the subject matter concerns the practice of medicine. The author of this book is in a position to know quite a bit about medical practice since he is Executive Secretary of the Medical Society of Milwaukee County. The subject matter of his book is also often better understood by laymen than by doctors, for doctors as a rule are less interested in the business side of their practice than they should be. If the physician was not faced by the necessity of earning money to pay living expenses and operating expenses, these business details might not be important but as long as doctors must pay their debts, the subject will be extremely important.

A few years of practice should teach a doctor most of the facts included in Wiprud's book, but the young man just embarking on his medical career could study it to his advantage. If you have been in practice for a long time and still wonder how you will meet your obligations, there may be some points well worth your time. You will find a discussion of record systems and bookkeeping, suggestions for collecting accounts, the laws pertaining to the collection of medical fees, the doctor's investments, his rights and method of behavior in court. There are helpful hints on the preparation of manuscripts, the correction of copy, conducting a meeting, and speaking in public. The reviewer feels that all medical schools should use a textbook like this. Practical experiences will emphasize the wisdom of Wiprud's suggestions.

C. K. W.

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**The Traffic in Health.** By Charles Solomon, M. D., Assistant Clinical Professor of Medicine, Long Island College of Medicine, Lecturer in Materia Medica, Training School for Nurses, Jewish Hospital of Brooklyn. Navarre Publishing Company, Inc., New York City. Cloth, 393 pages. Price $2.75 net.

If you were going to take some medicine yourself, would you prefer a drug of known composition and purity, or known action, one whose dosage was standardized and whose toxicology was clearly understood? Or would you prefer some mystic liquid of unknown composition made by some manufacturer of unknown reputation which was claimed in printed advertisement and by radio announcement to be a marvelous cure-all? For some strange reasons, many doctors still use drugs of the latter type. A glib salesman can make him prescribe a drug which he would not use if he knew its composition. After a good detail man has been through a town his product is frequently prescribed until some other salesman comes along and sells his drug to the profession. How many physicians ask the question, "Is your product accepted by the Council on Pharmacy and Chemistry of the A. M. A.?" If it is, the doctor can get all the information he wants from New and Non-Official Remedies. If it is not it had best not be used. There are plenty of drugs in the U. S. P., N. F. and New and Non-Official Remedies to meet the requirements of any practice.

What of these other drugs, these pain killers, kidney pills, liver pills, chill tonics, cures for sterility, for obesity, for kidney stones, for senility, for indigestion, for cramps, for tuberculosis and for cancer? Most of them are useless, their price exorbitant; some of them are injurious to health, or even life. The person responsible for promulgating on a gullible public a drug which may maim or kill, which plays on the hopes and credulity of the sick for the sake of profit deserves nothing better than the name of racketeer and the punishment the name deserves. Unfortunately punishment is not so simple a matter as the law is full of loop-holes and violation must be flagrant before a judgment can be obtained.

In a narrative manner, Doctor Solomon describes the quack and patent medicines. The physician should find his work interesting and instructive. It contains much meat which can be digested and presented to the public when opportunities for public speaking arise.

C. K. W.

**Psychiatric Nursing.** By William S. Sadler, M. D., Chief Psychiatrist and Director, The Chicago Institute of Research and Diagnosis; Consulting Psychiatrist to Columbus Hospital; in collaboration with Lena K. Sadler, M. D., Associate Director, The Chicago Institute of Research and Diagnosis; Medical Director, the North Side Rest Home; Attending Physician, Columbus Hospital and the Women and Children's Hospital; and Anna B. Kellogg, R. N., Member, American Nurses Association; Chief of Nurses, The Psychiatric Clinic of the Chicago Institute of Research and Diagnosis; Instructor in Psychiatric Nursing, The North Side Rest Home. The C. V. Mosby Company, St. Louis, Mo. 1937. 433 pages. Price $2.75.

Sadler's Psychiatric Nursing is a brief but comprehensive textbook written with that masterful touch which comes only with experience. It is written not only for the nurse who devotes herself to the care of mental cases but also for the nurse who cares for physical ills since in every illness the mental attitude of the patient plays a large part both in the nature of his complaints and in his response to treatment.

Part I is an introduction to the field of psychiatry—dealing with the history of psychiatry, the anatomy of the nervous system, endocrinology as related to behavior, medical psychology, mental mechanism, the general etiology of abnormal behavior and the general symptomatology of mental and nervous disorders.

Part II deals with the neuroses. Each main type of neurotic behavior is described and details of management of each type of case are given. The nurse is urged to consider the various mental and physical complaints of the neurotic individual as disorders of a maladjusted personality.

Part III deals with the psychoses, a condition which the author describes as, "A breakdown of the ego—a flight from adult adjustment back to the fantasy of childhood." The symptomatology and management of the various psychoses are well presented.

Part IV is of particular value to the nurse. Here are discussed the qualifications of a good psychiatric nurse, her problems and adjustments, her personality, her part in the management of the case. Some of the general principles of psychotherapeutics are presented to aid the nurse in treating cases with mental and nervous disorders.

The reviewer feels that the book is probably a little difficult for nurses just beginning their study in psychiatric nursing, otherwise it is an excellent text. It is a good reference book for nurses who have had previous study in that field. Graduate nurses who are dealing with psychiatric cases should refer to this work from time to time to further their abilities in that field of nursing.

H. L. R.

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**Materia Medica, Pharmacology, Therapeutics and Prescription Writing.** By Walter Arthur Bastedo, Ph. D., M. D., Sc. D., F. A. C. S., Consulting Physician, St. Luke's Hospital, New York, St. Vincent's Hospital, Staten Island and the Staten Island Hospital; President, United States Pharmacopoeial Convention 1930-1940; Member Revision Committee U. S. Pharmacopoeia. Formerly Curator of the New York Botanical Garden, Attending Physician, City Hospital, New York, Instructor in Pharmacology, Cornell University, Associate in Pharmacology and Therapeutics, and Assistant Clinical Professor of Medicine, Columbia University. Fourth edition, reset. 778 pages with 81 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth. $6.50 net.

When the reviewer was a medical student, the text-book which he used most often, which he underlined, studied, memorized in detail, was a second edition of Bastedo's Materia Medica, Pharmacology and Therapeutics. It is interesting to note the numerous changes in this volume since his first acquaintance with it in 1918. At that time there was no insulin. There was cod liver oil but no discussion of vitamins, no liver extracts, no atabrine and little dealing with endocrine preparations.

The current edition of Bastedo includes many new drugs which have proved themselves to be of therapeutic value—acetylbetamethylcholine, aminoacetic acid, coramine, cyclopropane, divinyl ether, histidine, mandelic acid, pentneucleotide, protamine insulin and sulfanilamide. The dangers of amidopyrine, cinchophen and dinitrophenol are discussed in detail. The chapters on vitamins and endocrines have been brought up to date.

This book is intended for students and practicing physicians. It is not for the research worker. It is not primarily a reference volume. While dealing with therapeutics, it stresses pharmacology. If one understands the effect of a drug on the various organs of the body, one will use the drug intelligently. Hence the busy doctor may find it worth his while to study pharmacology of drugs rather than the advertisements of drug houses.

C. K. W.

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**A Diabetic Manual.** For the Mutual Use of Doctor and Patient. By Elliott P. Joslin M. D., Clinical Professor of Medicine, Harvard Medical School; Medical Director, George F. Baker Clinic at the New England Deaconess Hospital; Consulting Physician, Boston City Hospital, Boston, Mass. Sixth edition, thoroughly revised. Illustrated. Lea and Febiger, publishers. Philadelphia. Price $2.00 net.

Patients with asthma, tuberculosis or diabetes should be familiar with the nature of their disease, its possible complications and the methods of preventing them and the drugs used in the treatment of the disease. In the treatment of tuberculosis, sanitarium care has one advantage over home care in that it gives the patient an opportunity of learning how to handle himself. It would be fortunate if every diabetic could have an opportunity to be trained in the methods of caring for his disease. In the absence of special schools or hospitals where this can be done, it remains for the physician to act as teacher and give the necessary instructions to his patients. Even though the physician may know all that is necessary as to the diagnosis and treatment of diabetes, he may find it extremely difficult to translate this information into simple language that can be understood by his patient. The physician who treats diabetes will, therefore, find this manual of definite value not only for his patients but for his own use as well.

There are other diabetic manuals that are available and some of them are quite good but this one of Joslin's has a particular character. On its pages one reads between the lines hope, cheerfulness, usefulness, determination and idealism. The diabetic who reads this manual will develop no morbid introspection but rather a strong determination to gain any knowledge which will help him in getting well.

The new edition is presented at this time to include a description of the new protamine insulin which is being used almost to the exclusion of the old plain insulin. This volume will prove its greatest usefulness when used both by doctor and patient.

C. K. W.

# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 6** **Montgomery, Alabama** **December 1937**


## PSYCHIATRY ADRIFT WITH THE TIMES*


By
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If an individual plans a home, he at first makes a study of the landscape; if one contemplates an industrial enterprise, he studies and evaluates contributing or deterring factors and conditions as to availability of raw materials, labor, climate, health, sanitation and accessibility to markets. Likewise, if psychiatry has a comprehensive view of its job, it must take into account the background in facts and conditions out of which its problem comes. It must realize that mental disease and mental deficiency are miscarriages derived from untoward conflicts of natural laws, and are penalties for what has gone wrong in violation of the original purpose and plan of intended harmony in the universe.

Two English words most expressive of the present needs of the human race are conservation and reclamation. This is not only true as it applies to our natural resources—our forests, our soils, our minerals, our tame and wild animal life—but is even more particularly true as it applies to the race of mankind.

Throughout the greater part of the history of the world many natural resources were undiscovered or unrecognized, and, as a consequence, were not wasted; but since these have been discovered and their many uses developed, we have grown up a generation whose principal object seems to be to exploit and extravagantly consume and dissipate these natural advantages. There seems an utter disregard for either a memory of the past or a vision of the welfare of the future in our mad extravagance in wasteful dissipation of world resources. Consequently, those gifts of nature that go to maintain the lives of people and contribute to their benefit, a present civilization is making a wild effort to exploit and wastefully dissipate and consume, failing to take into account the needs of on-coming generations. Unless we include in our program and plan a serious consideration of the welfare of those who are to follow us, as well as our own present needs and wants, there will come a time when what mother earth has to supply may become exhausted. At one time there appeared such an inexhaustible supply of natural resources that timber was laid waste, new clearings were made, soils were eroded and not conserved, and we moved on to new clearings and more waste as our wants and demands presented themselves. Lack of new territory to exploit is beginning to create a recognition of needs for conservation and reclamation.

This spirit of wasteful extravagance has not been confined to our natural assets, but wherever and whenever it prevails it likewise extends to extravagance in human resources. As natural advantages must be considered as provided by nature for the use and sustenance of a continuous living stream of humanity inhabiting the earth, so it must be considered that a conservation of, and wherever needs be a reclamation of, human resources affects not only a present generation but must be passed on from the lives, habits and customs of our progenitors through us to project its effects along this continuous stream of life from one generation to another through the dim and uncertain future. Whatever uplifts and promotes the physical and mental welfare now promotes the interests and possibilities of the future physical and mental welfare of a race of people. Wherever extravagance of natural or human resources is long practiced the inevitable sequence is racial, moral and social disaster. This extravagance of human resources is more evident and more prevalent than at any period in the history

*Presidential address, annual meeting of the Southern Psychiatric Association, San Antonio, Texas, October 8, 1937.

of the world in our mad rush forward in what we are wont to refer to as modern progress. The further we get away from the simple life into the complex life of our present age, the greater the demands upon the brain of man, and the greater the sacrifice in degeneracy and deterioration, not only of individuals but of the race. This prevailing spirit of extravagance is paying a larger price in discards and creating a greater problem of reclamation than ever in the history of the world. Unless we recognize this and learn to practice conservation, no program of reclamation will be sufficient to guarantee a continued stable society and civilization.

Extravagance in material things leads to extravagance in thought. Extravagant habits of thought lead to liberalization and abandonment of standards of living, which in turn lead to moral, social and economic degeneracy. A modern teaching, to the effect that everyone should grow up and develop character naturally, unencumbered by restraints, has led to license and belief that youth should pursue whatever inclination it desires, abandoning all restraint and self-discipline, in conformity to standards—while we have been taught, since the beginning of history and now observe, that personal sacrifice and self-denial tune and sharpen character and that the physical appetites of men are not safe guides always to behavior. Esau, no doubt, experienced immediate gratification in consuming his mess of pottage while the sacrifice of his birthright sealed his doom. The physical appetites of Nero, no doubt, enjoyed immediate satisfaction as he "fiddled while Rome burned," all to the ultimate destruction of a civilization.

The history of the world, with the rise and fall of civilizations in the past, justifies the deduction that man as a race first develops through hardships, obstacles and the practice of self-denial, suffering and sacrifice; then such civilization so developing degenerates and falls through profligacy of habits and thought, followed by moral, intellectual and social decay. Extravagance of practice and extravagance of thought lead to liberalization and abandonment, one by one, of standards of living, to exaggerated beliefs as to personal rights and license, to selfishness with delusions of persecution, arraying class against class, designing leaders taking advantage of the credulous to promote strife between the barons of industry and the barons of labor. Such liberalization of thought leaving no standards except physical appetites as guides leads further to juvenile delinquency and crime, to domestic discards, infidelity and divorce, increasing fatalities from accident and homicide, to growing population of prisons, reformatories and institutions for inebriates, the insane and feebleminded—all phases of the one common problem of human behavior under a wave of extravagant thought and unrest, all mental, and a problem of ours as students of behavior. While this prevailing mental state is only incipient in America, we see it as a fixed affliction of European and Asiatic peoples. Out of all this confusion and conflict of thought and extravagance of action, our problem of mental disease and mental deficiency grows by multiplied thousands. Therefore, under the present signs of the times, without wishing to be a pessimist, it is well that the present generation take heed through retrospection of the calamities of ancient Egyptian, Grecian and Roman experiences and the long dark ages that followed, in the hope of safeguarding our present civilization from the same mad rush to ruin through moral and, finally, political decay as went these ancient civilizations.

There was a time, before modern practice under scientific guidance protected the weak, that the necessary rule of "survival of the fittest" preserved only the strong, and the weak, under the then prevailing conditions, were eliminated. The same irrevocable laws of nature that govern evolution and improvement in animal life applies likewise to human beings. While our society precludes the possibility of the same practices as observed in the maintenance and upbuilding of animal and vegetable life, yet what would we expect in the propagation in these fields if the weak and the degenerate, the runts and the inferiors were permitted to reproduce and replenish, instead of the acknowledged practices of only the fit and the select? This principle runs throughout all nature, including vegetable, animal and man. The answer is that we must look to some control of the propagation of the degenerate and create wholesome conditions of reproduction in the fit. Some of the modern practices of extravagance

and dissipation in human energies in the normal disqualify for parenthood.

Discussing more specifically some of the collateral problems involved, what is going to be the effect of this mechanical age? All animal life, including the human being, was created with such physical needs as demands the individual animal obtain its livelihood from its environment by its own effort; thus physical employment, physical effort and physical labor are normal and required to maintain a normal existence. In this day of all human activity being supplanted by machines, so that man need not work or walk, and physical employment is not sufficient to occupy all of the people except for minimum hours, not only the abnormal situation of physical inertia and lack of development is a danger, but the very leisure itself is a threat of mental and moral degeneracy and is a challenge to the best thought of our time. We know that most of the causes of mental and moral disease do not date from the hours of occupation and employment but from the hours of leisure ill spent. Therefore, in this age and time, if we will preserve the physical, mental, moral and social status that has been gradually built up through the labors and sacrifices of our fathers, we must find a more wholesome way of spending our surplus and increasing hours of leisure.

We face another revolution in thought to which we must adjust ourselves. All civilizations have been built upon the idea of individualism. We have always been taught that our eternal salvation depends upon our individual choice, conduct and behavior; that others of the same group by no act on their part can insure salvation collectively, but that we on the final day must be examined upon our individual record. Likewise, we are taught through the laws of natural life that compliance with the laws of health insure our own physical well-being, while violations likewise cause individual suffering; that individuals must live or die in accordance with their own conformance separately and individually to natural laws, there being no collective escape or penalty. No one by whatever conformity can atone for or protect against the violation of his comrade. Each in health or disease must be the sequence of his own conformance or non-conformance.

On this principle of individualism is based our civil laws. Each individual must separately and distinctly be responsible to society and to state for his own behavior. No group can assume the responsibility of the crime of an individual. All nature and all history teach us individual reward for individual merit and behavior, and individual punishment and suffering for individual violation, and individual responsibility to God, to natural law and to man as an incentive to individual merit. Any social or economic trend that removes or destroys this individual incentive is destructive of the principles that so guide one's conduct as to insure physical, mental and moral conservation, with its attending strength and stability of intellect and character. It is upon this basis of psychologic deduction that we must explain the great wave of criminal youth. A socialistic or communistic teaching inclined to generate a feeling that whatever is belongs as much to one as to another says to the unstable idle youth, "you have a right to your share without effort, sacrifice or individual merit, whether it be obtained in robbing a bank or a hold-up on the highway." We are no longer taught that we are entitled to a remuneration in accordance with measured service rendered and that it is theft to accept remuneration without giving in return equal value in service. In all of this revolutionary change of thought we must find a way to adjust without complete mental, moral, social and political degeneracy in order to make what we may term progress a fact rather than a vision or theory, and thus disillusion the illusioned.

Again, there is a great problem to be solved in the reconstruction of our educational scheme. When we recognize, as we must recognize, all variations natively in strength and stability of intellect, as we recognize all variations in physical stamina and characteristics, racially and constitutionally; and recognize further that education is not a process or undertaking to accomplish addition to intellect, but is the mere polishing and development of whatever qualities and capacities may be found in an individual, we must be forced to the conclusion that uniform, universal higher education in the sense now promulgated is not only impractical and inadjustable to the facts but also leads to and is responsible for untold numbers of disasters, disappointments and mental and moral calamities.

Why have I drifted into this possibly apparently irrelevant discussion? It is in order to bring us face to face with the shortcomings of our present program as psychiatrists. It is in order that we may see together that we as physicians and psychiatrists are occupied almost solely in the work of rehabilitating and reclaiming those who fall over the precipice, and yet we are falling far short in not having some danger signals and precautions at the top of the precipice to prevent the growing and increasing stream of humanity from this calamity. We are devoting our efforts to reclamation and rehabilitation to neglect conservation. As psychiatrists we are also sociologists and as such must visualize man as an entity biologically, without interruption of life, tied to progenitor on one hand and progeny on the other, yet related socially to his fellow in mind and spirit; that he as an autonomous organism must determine his relationship in his behavior, in which he is constantly being judged by his fellows.

The great program that presents itself is one of preservation and prevention, a program of rational mental hygiene. This program has by the very nature of things an intimate affiliation and relationship with those problems that concern us otherwise socially in crime, delinquency and dependency and has its ramification through all rules and customs and standards of social life, public health and public education. Sometimes I think how futile the effort in developing some better method of treatment of schizophrenia or some improved plan of training and caring for the mentally deficient while these are merely products directly or remotely of the conflicts and errors of our complex social organization, and little is being done in teaching or otherwise to correct and set aright the conditions responsible for the disasters we handle. We cannot escape such contemplation in the face of the almost incalculable increase in number of mental breakdowns and the growing army of mental deficients confronting us. What are we going to do about it? We would no longer content ourselves to sit idly by in the treatment of typhoid fever, malaria or any infectious disease without being profoundly concerned as to the dangers, the source and the cause in the protection of the interests of others.

Article II of our constitution defines the objects of our organization as follows: "The objects of this Association shall be (A) to further the study of all ethical subjects pertaining to the cause, treatment and prevention of mental disorders; (B) to promote the interests, maintenance and the advancement of standards in public and private hospitals for mental disorders, of out-patient clinics, and of all other agencies concerned with the medical, social and legal aspects of these disorders; (C) to further psychiatric education and research; and (D) to increase psychiatric knowledge in other branches of medicine and in other sciences and to furnish the public with the proper concept of psychiatric disease." We hope that all psychiatrists of the South and the Southwest may unite through this organization in an effort to promote teaching of mental hygiene in affiliation with and cooperation with the parentbody, The American Psychiatric Association. We solicit your sympathetic interest, your membership and your cooperation.

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## LOBAR PNEUMONIA*

### ETIOLOGIC DIAGNOSIS AND SPECIFIC TREATMENT

By
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And
GEORGE A. DENISON, M. D.
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Mortality from lobar pneumonia has continued at a high level despite improvements in methods for diagnosis and for symptomatic and supportive treatment. Fatality rates definitely place this disease among the leading causes of death in the United States. Alabama is situated in one of the areas of highest mortality, and in 1936 experienced 61.3 deaths per 100,000 of the population.

As discouraging as past history may appear, the outlook for a substantial reduction in mortality is materially brightened through recent developments which place both the diagnosis and treatment of certain types of pneumonia on a specific and scientific basis.

#### RECENT DEVELOPMENTS

Within the past thirty years marked progress has been made in the study of the pneu-

*Read before the Jefferson County Medical Society, Birmingham, October 18, 1937.

mococcus and in the development of specific antisera; and, if practicing physicians fully utilize these measures which are now available, a marked and lasting reduction in mortality from lobar pneumonia may be expected.

*Etiology*

Neufeld and Handel[1] in 1910, and Dochez and Gillespie[2] in 1913 demonstrated that, contrary to the general belief, all pneumococci were not alike and that immunologically they could be divided into three fixed types (types I, II and III). Those not classified to these three types were relegated to "group IV" which contained a heterogeneous mixture of pneumococci, immunologically diverse and unclassified. Recently Cooper[3] and her associates have divided this heterogeneous "group IV" into twenty-nine new antigenic types with the result that we now have thirty-two different species of pneumococci which for practical purposes may be considered as entirely separate and distinct organisms.

*Antisera*

A rational beginning of the specific treatment of lobar pneumonia immediately followed the discovery of the specific types (I, II and III) pneumococci. The use of type-specific antipneumococcus serum was reported by Neufeld and Handel[4] in Germany in 1910, and by Cole and Dochez[5] in this country in 1913. Horses were injected with type-specific pneumococci. The unconcentrated serum was obtained and administered to patients with lobar pneumonia in an effort to produce passive immunity. The amount of serum used was necessarily large (averaging 420 cc. for type I cases) and was often accompanied by severe reactions. In 1924 Felton[6] developed a method of concentrating serum with the result that purified solutions containing large amounts of antibodies are now available. Concentrated horse antiserum, reasonably safe for intravenous administration, is now available for the treatment of types I, II, V, VII and VIII pneumonia. More recently, Horsfall[7] and his associates at the Rockefeller Institute have reported the production of antisera in rabbits which is effective, and which in its unconcentrated form is more than two times as potent as concentrated horse serum. Furthermore, the rabbit antibody is considerably smaller than the horse antibody and can more easily penetrate infected tissues. It is anticipated that before 1939 effective antisera will be available to the general practitioner for the treatment of pneumonia caused by all thirty-two types of pneumococci.

*Neufeld Typing*

Simultaneous with these developments, reliable methods have been devised to determine accurately and quickly the type of infecting pneumococcus, thereby permitting early administration of specific antiserum. Formerly, it was necessary to isolate the organisms by cultural methods, or by mouse inoculation, and then to type them by agglutination reactions, precipitin methods, or by protection tests. These methods are time consuming, however, and have largely been replaced by the Neufeld "quellung" reaction which was described by Neufeld in 1902 and adapted to the examination of sputum by Armstrong[9] and by Logan and Smeall.[10] The reliability of the Neufeld reaction has been firmly established. Its advantage lies in the rapidity and ease with which it can be performed. By means of this method, which utilizes sputum and rabbit pneumococcus antiserum, type differentiation can be made within five to sixty minutes. Positive reactions occur when pneumococci are mixed with their specific antisera, and are indicated by a swollen, definitely outlined capsule presenting an unstained greenish-grey appearance. In negative reactions the capsule is either not seen or appears as a faint halo of light about the organism.

*Epidemiology*

Epidemiologic studies have contributed much toward our knowledge of the modes of spread of pneumonia, in determining the various factors surrounding infection, and the relative significance of the various types

1. Arb. a. d. k. Gsndhtsamte. 34:293 (Aug.) 1910.
2. J. A. M. A. 61:727 (Sept. 6) 1913.
3. J. Exper. Med. 49:461 (Mar.) 1929; 55:531 (Apr.) 1932.
4. Arb. a. d. k. Gsndhtsamte. 34:166 (June) 1910.
5. Tr. A. Am. Physicians 28:606, 1913.
6. Boston M. & S. J. 190:819 (May 15) 1924.
7. J. A. M. A. 108:1483 (May 1) 1937.
8. Ztschr. f. Hyg. u. Infektionskr. 40:54, 1902.
9. Brit. M. J. 1:187 (Jan. 30) 1932.
10. Brit. M. J. 1:188 (Jan. 30) 1932.

of pneumococci. The work of Smillie has been outstanding in this field.

Some of the difficulties that have clouded the epidemic nature of lobar pneumonia have been the fact that it is usually impossible to trace the source of infection to a previous case, that many normal individuals harbor pneumococci in the nose and throat, and that instances are common in which the disease follows exposure to cold and wet. Thus there seemed ample evidence to support the general belief that the entrance of pneumococci into the respiratory tract could not in itself produce pneumonia, and that the disease occurred as a result of auto-infection following an unusual lowering of resistance such as might result from exposure, malnutrition, or disease. This conception is only partially true.

Sutliff and Finland[11] in studying 770 typed cases of lobar pneumonia found types I, II, III, VIII, V, and VII to be the six most common in the order named, and responsible for 84% of all cases. Types I and II pneumococci are responsible for about 60% of all cases. Types I and II are rarely found in the upper respiratory tract of normal persons and carriers of these organisms are very largely limited to contacts of type I and II cases. Thus Cruickshank[12] found that 16-18% of patients and nurses in contact with such cases became carriers, while Smillie and Leeder[13] found that 20% of persons in intimate family contact with type I and II cases became carriers. In contrast to this Smillie[14] found carriers of type III to XIX pneumococci to be just as common in the general population as in exposed groups. These and other data strongly suggest that pneumonia due to the higher types of pneumococci (III and above) commonly arise as a result of invasion of the lung by organisms normally present in the mouth, and presumably as a result of previous conditions or disease which lower the normal resistance. This agrees with the findings that the higher types of pneumococci are the most common single invaders in bronchopneumonia while types I and II are found only in about 5%. The limited distribution of type I and II pneumococci to patients with lobar pneumonia and their contacts suggests that this infection is spread by contact, and that pneumonia due to these types is a communicable disease of epidemiologic significance.

That most persons have a substantial immunity even to type I and II pneumococci is evident from the fact that secondary cases are uncommon, and that the attack rate is very low among those exposed to cases and carriers. Mere acquisition of the organisms is not sufficient to produce the disease in most persons. A history of acute respiratory infection, usually the common cold, is obtained in 76% of patients with lobar pneumonia and suggests that the common cold is an important predisposing factor.

The implications of the above epidemiologic facts are definite. With present knowledge, public health programs cannot hope to limit the number of cases of lobar pneumonia occurring in the general population. Health departments working in cooperation with physicians can, however, effect a material reduction in fatality by:

(1) Maintaining a typing service readily available to all physicians. This is being done by the State Department of Health through all of its branch laboratories which now offer free typing service by the Neufeld method.

(2) Furnishing free pneumococcus antisera to physicians for the treatment of indigent cases when, and if, funds permit. Possibilities in this direction are remote.

(3) Educational programs directed to the public stressing the importance of early and adequate medical care in the treatment of all acute respiratory infections.

### DIAGNOSIS

A large proportion of lobar pneumonia cases are typical, especially those of types I and II pneumococci. Seldom do we see, except in lobar pneumonia, an explosive onset with chill or chilliness, stitch in the side, rapid elevation of the temperature which may reach 102° to 104°F. within a few hours, and a dry cough which becomes productive with a rusty tenaceous sputum within 24 hours.

A difficult diagnostic problem may, however, be presented in atypical cases. Bronchopneumonia, pulmonary infarction, and acute tuberculous lobar pneumonia must be considered. In older children and in ad-

11. J. A. M. A. 101:1289 (Oct. 21) 1933, reprinted with additions.

12. Lancet 1:563 (Mar. 18) 1933; 1:621 (Mar. 25) 1933; 1:680 (Apr. 1) 1933.

13. Am. J. Pub. Health 24:129 (Feb.) 1934.

14. J. A. M. A. 101:1281 (Oct. 21) 1933.

ults bronchopneumonia is usually secondary to more severe types of infection. The onset is more insidious, the temperature more irregular and the physical signs less definite. With pulmonary infarction the onset may simulate lobar pneumonia in acuteness with chill, pain in the side, cough, and bloody sputum. The sputum may contain blood streaks though the blood is usually intimately mixed and of dark red color. The temperature rises more gradually. Infarction may occur in patients with latent venous thrombosis, and a history of operation, delivery, or trauma is suggestive. In acute pneumonic tuberculosis hemoptysis may be the first symptom. The initial chill and pain are less common, and pallor occurs rather than cyanosis. There is unusual irregularity in the temperature curve, absence of leucocytosis, and physical or roentgenologic evidence of apical involvement. Greenish expectoration is more common than rusty sputum and tubercle bacilli are usually present. Family and past history may be suggestive.

The diagnosis of "lobar pneumonia," whether provisional or established, represents merely an anatomic diagnosis of which there are 32, or more, etiologic varieties, usually caused by a family of closely related organisms, the "pneumococci." The specific, or etiologic diagnosis, is never made by examination of the patient. A bacteriologic examination is necessary to determine the type of infecting agent. For this purpose the Neufeld "quellung" reaction, as previously described, is preferable. It is both extremely quick and reliable.

A teaspoonful of sputum is sufficient. Inasmuch as saliva and nasal secretions may contain pneumococci which bear no relation to the disease in the lungs the specimen must be as free of this material as possible. The mouth should be rinsed several times with water or saline. The specimen should come directly from the lungs and should be collected in a wide mouth sterile bottle. Since living organisms are required for laboratory examination antiseptics should not be used in rinsing the mouth, and preservatives must not be added to the specimen after collection. Bottles containing phenol (such as are used in collecting sputum to be examined for tubercle bacilli) cannot be used even after the phenol has been poured out. In view of the importance of early specific treatment the specimen should be sent to the laboratory with the least possible delay. If delay is unavoidable, sputum 24 to 48 hours old may be satisfactorily examined provided overgrowth of other organisms is prevented by storage of the specimen at refrigerator temperatures.

If there is difficulty in raising sputum a specimen can usually be obtained if the patient is told of its importance. If there is troublesome pain with coughing morphia may be given. A hot drink may promote expectoration, or irritation of the pharynx with a swab may induce retching.

As previously emphasized, type I and II pneumococci are almost exclusively limited to patients with lobar pneumonia and their contacts. The identification of one of these types in sputum of the patient is almost certain evidence that the organism is the cause of the disease. However, the identification of higher types (III to XXXII), commonly found in the normal mouth, may mean that the causative organism has not been recovered, and a second specimen should immediately be typed in order to verify or correct the first examination.

## SPECIFIC THERAPY

### *Prevention and Treatment of Serum Reactions*

The intravenous administration of concentrated, or refined, horse serum involves some risk though the danger is small if available precautions are taken to exclude those sensitive to horse serum. Of 956 cases in the Massachusetts Pneumonia Study,[15] death occurred in 0.4% from the use of horse serum; mild or moderate allergic reactions occurred in 8% (these were easily controlled with epinephrine); chill reactions occurred in 20%; mild serum sickness was reported in 17.5%.

These reactions, especially those of a severe nature, may largely be avoided by observing the proper precautions. A history of the patient as regards allergic manifestations should be taken. Sensitivity to horse serum should be determined by means of the eye test, or skin test, or both.

In performing the eye test the condition of the conjunctiva is first carefully noted for evidence of inflammation. A drop of diluted or concentrated normal horse serum, or of antipneumococcus serum, is dropped in the conjunctival sac of one eye. The other eye serves as a control. Positive reactions are uncommon but when present appear within 30 minutes as a diffuse reddening of the eye accompanied by itching and watering. Reactions usually subside within several hours and are easily controlled with 1:1000 epinephrine. Care should

15. Final Report, Mass. Pneumonia Study & Service, 1931-35, Heffron, Roderick & Robinson, Elliot S., Commonwealth 1:48, Jan.-Feb.-Mar., 1937, Mass. Dept. Public Health.

be taken that the serum is not washed out by crying, as may occur with children.

The skin test is made on the forearm by intracutaneous injection of sufficient normal horse serum (diluted 1-100) to make a small wheal. A second wheal is made on the other forearm with physiologic saline to serve as a control. If positive, an urticarial wheal with surrounding erythema appears within five to twenty minutes and usually subsides within several hours.

In discussing the dangers of serum treatment Lord and Heffron[16] make the following summary:

Serum treatment should NOT be given to:

1. Those with history of asthma or vasomotor rhinitis under exposure to emanations from horses. These persons should not even be tested for sensitivity.
2. Those receiving horse serum seven days to three months previously.
3. Those giving a positive reaction to the eye test or a strongly positive reaction to the skin test.
4. Those very old or infirm, and those with pulmonary edema or in extremis.

Serum treatment entails more than the usual risk in:

1. Those with a family or personal history of asthma or hay fever, eczema, urticaria, or angioneurotic edema.
2. Those who have received horse serum (this does not include diphtheria toxoid which contains no horse serum).
3. Those giving a mildly positive reaction to the skin test.

Serum treatment should be discontinued following any injection in:

1. Those having had a severe, shock-like reaction, an asthmatic attack or urticaria, or alarming thermal reaction.

The ordinary allergic reactions, characterised by flushing of the face, dyspnea, cyanosis, rapid weak pulse, lumbar or abdominal pain, and apprehension, react to subcutaneous, intramuscular, or intravenous injections of ½ to 1 cc. of 1:1000 epinephrine. Accelerated reactions accompanied by urticaria or acute asthmatic attacks occur in patients giving a history of previous serum administration. Treatment requires repeated injections of epinephrine at short intervals.

Thermal, or chill reactions, may occur within 30 minutes to one and a half hours after serum injection. They are not allergic manifestations but are due to some peculiarity of the serum. Epinephrine is not indicated and treatment is symptomatic. If the fever is extremely high the patient should be treated as in heatstroke. Venesection may be resorted to in pulmonary edema.

Serum sickness may be annoying but is not serious. It occurs in about 18% of cases and usually appears between the seventh and tenth day. Manifestations are more severe in those receiving larger amounts of serum. Itching may be allayed by external application of calamine lotion, by small subcutaneous doses of epinephrine, or ephedrine by mouth (1/3 to 3/4 gr.). Salicylates may be used to relieve joint pains.

*Administration of Antiserum*

It is imperative to begin treatment at the earliest possible moment and to give the serum in the shortest time consistent with safety. The required dosage varies with each case and only very general rules can be indicated. In Great Britain[16] a total dosage of 80,000 units with variations from 50,000 to 120,000 units for type I cases has been given. Larger doses were required for type II cases. In the Massachusetts Pneumonia Study 429 type I cases were treated during the first four days of illness with an average dose of 96,000 units. The resultant mortality was 11%. Experience indicates that favorable results may be obtained with small doses and Lord and Heffron[16] recommend the administration of 60,000 units (20 to 50 cc.) in the treatment of type I cases and 100,000 units in type II cases as the desirable initial amount.* Subsequent injections should be made as the individual case may require. A favorable response usually occurs within eight to twenty-four hours after the first dose and is indicated by a fall in temperature, lowered pulse rate, lessened toxemia, failure of consolidation to spread, and the disappearance of organisms from the blood.

The most reliable guides to the need of further treatment are the level of the temperature and the blood culture. Generally speaking, further doses are indicated if the temperature fails to fall below 101°F. by mouth within 18 hours, or if bacteremia persists. A subsequent rise in temperature due to complications, such as empyema or otitis media, does not call for additional serum treatment as serum is of no value in the treatment of complications after they have developed. Administration of serum should be discontinued in patients who have been persistently treated for 72 hours without effect.

If there are no contraindications as determined by history, eye tests, and skin tests, specific antiserum should be administered. Lord and Heffron[16] recommend the following procedure:

16. Lobar Pneumonia and Serum Therapy, Lord, Fredrick T. & Heffron, Roderick, 1936, The Commonwealth Fund, 41 E. 57th St., N. Y.

*In New York State the initial dosage recommended is higher than in Massachusetts, 100,000 units for type I and 160,000 units for type II cases."

1. First remove 5 to 10 cc. blood and culture for organisms. This is of prognostic value and with subsequent cultures at 24-hour intervals serves as a guide for dosage.
2. Inject 2 cc. of warmed serum intravenously not faster than 1 cc. per minute.
3. After two hours a second dose (8 to 13 cc.) is given during a period of five to ten minutes.
4. After another lapse of two hours a third dose totaling about 20 cc. (depending on the concentration of the serum) is given over a period of about 15 minutes.

The serum should never be diluted before its administration as a precipitate may form. Subcutaneous or intramuscular injection is not recommended. A syringe of 1:1000 epinephrine should always be ready and available for use if untoward reactions occur.

These three doses are calculated to inject 60,000 units for type I pneumonia; for type II pneumonia additional doses of 20,000 units each are given at two-hour intervals to bring the total up to 100,000 units. The above outline serves only as a general guide. The volume of serum will vary with its concentration, and the unit dosage will vary with the severity of the disease. Larger doses are required if bacteremia is present.

In children infections with the higher types of pneumococci are more common in both lobar and bronchopneumonia. Effective antisera for these higher types are not yet available. Because of this, and owing to the low death rate at this age, the difficulty of repeated intravenous injections, and the lack of conclusive results, the treatment of children with serum is seldom attempted.

Most important among the avoidable factors causing failure of specific therapy are (1) delay before beginning treatment or too long intervals between doses; (2) accepting other than type I or type II pneumococci in sputum as the causative agent without repetition of Neufeld typing to avoid error; and (3) failure to use sufficient amounts of serum in severe cases, in pregnancy, and in bacteremia. Unavoidable failures occur in the presence of complications, especially empyema, or when there is an infection of several types of pneumococci, or of other organisms.

*Results Obtained*

The effectiveness of antisera in the specific treatment of types I and II pneumonia is best judged by mortality rates. Heffron[16] has collected a large number of treated and untreated civilian cases from the literature as follows.

| | Number Untreated Cases | Mortality Untreated Cases | Number Treated Cases | Mortality Treated Cases |
|---|---|---|---|---|
| Type I | 1614 | 25% | 2458 | 15.6% |
| Type II | 992 | 41% | 670 | 30.6% |

The mortality among untreated cases represents the expected fatality. The lowered mortality in treated cases represents a considerable savings of life when antiserum is administered under varying conditions, both favorable and adverse. Heffron[15] and his associates, in their final report of the Massachusetts Pneumonia Study, show an even greater reduction in mortality when treatment is begun within four days of the onset. They report 504 type I treated cases with a mortality of 11.1%, and 136 type II treated cases with a mortality of 27.2%. Among this latter group mortality of type I and type II cases was reduced 55.6% and 33.6% below the usual expectancy. The Massachusetts Study further demonstrates that type I and II cases can be satisfactorily treated with specific antisera by physicians in general practice and without hospital facilities. Over one-half of the cases reported were treated in the home or in small hospitals.

Finally, it should be apparent that (regardless of specific therapy) good nursing care, and symptomatic and supportive treatment, with the administration of oxygen when cyanosis develops, are absolutely essential for all cases of pneumonia.

**Heart Affections**—It is a common occurrence for the physician to be asked by the patient after his temperature has reached normal, "When can I get up and when can I go back to work?" This question should not be answered carelessly or hurriedly, but the matter of observation through his convalescence, if there are any of the well-known signs of myocardial weakness present, should be discussed at length with the patient. He should be made to realize that care through the convalescence will give his myocardium the best chance for its return to normal.—*Hunter, New Orleans M. & S. Jour., Dec.* '37.

*For a brief, concise, and authoritative treatise on specific therapy, the book of Lord and Heffron on "Lobar Pneumonia and Serum Therapy," published by the Commonwealth Fund, 1936, is recommended.

# THE MODERN TREATMENT OF PNEUMONIA*

By
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Pneumonia was known to Hippocrates and vividly described by Aretaeus, the ancient. Morgagni and Valsalva in the seventeenth and eighteenth centures made many accurate clinical and pathologic observations in regard to pneumonia. The first masterly description of the physical signs and morbid anatomy was made by Laennec in 1819.

Pneumonia is still a widespread, fatal and fearful disease. It is listed second as a cause of death in Georgia during 1936. The total number of deaths from pneumonia in Georgia in 1936 was 3,803. There were 124.6 deaths per hundred thousand persons.[1]

The old weatherbeaten prognostic fable divides all pneumonia into three classes. In class one all of the patients will survive the disease regardless of the treatment employed. In class two, all of the patients will die in spite of the treatment used, while in class three, the patients hover between life and death and may be saved by efficient treatment.

A review of the pertinent literature for 1936 revealed the following facts in regard to the modern treatment of pneumonia.

The common symptoms and physical signs of lobar pneumonia are well known to you but Christopher Howard has described three reliable signs of early pneumonia. They are dilatation of the nares, a complete absence of chlorides from the urine and a pungent burning of the skin over the affected areas even in the absence of a high temperature.[2]

The first important consideration in the successful treatment of pneumonia is the determination of the type causing the infection. The typing is done by examination of the sputum, the Neufeld test. The expectorated material should come from the lungs. A teaspoonful of sputum is sufficient for a type diagnosis. Any qualified technician can type the sputum or if desired a physician may quickly learn to do his own typing.

Approximately 95 per cent of lobar pneumonias are caused by the pneumococcus, of which there are thirty-two types. Specific antiserum offers the only certain means of favorably influencing the death rate. Unfortunately we only have a specific antiserum for types one, two, five, seven and eight. The first two types comprise 56.7 per cent of lobar pneumonias, while types one, two, five, seven and eight cause 65 per cent.

One of the most important factors in the serum therapy is early and adequate dosage. It saves lives and serum. Serum therapy offers hope in "late" cases. The prognosis is poor but there is an appreciable reduction in mortality.

Bacteremia, or blood stream invasion, in lobar pneumonia increases the death rate from three to five times. Here lies the great point in favor of the serum treatment because it prevents bacteremia if used early and in sufficient dosage. Without serum treatment about 33 per cent of patients with type one pneumonia and 40 per cent with type two pneumonia develop bacteremia.

"The original work with the serum was done by Neufeld and Handel in Germany and it was introduced into the United States by Cole about 1910. However, the serum did not become generally used because it was difficult to produce, and because a large volume of horse serum had to be injected in order to obtain sufficient units of serum to give benefit, and serum sickness frequently followed. With the improvement in production devised by Felton, the serum is again widely used."[3]

The dosage employed depends upon the type of pneumonia, the extent of pulmonary involvement, the stage of the disease and whether the patient is pregnant or not. In pregnancy, twice the usual amount of serum is necessary. The technique of serum administration is as follows:

First, obtain the allergic history of the patient. A serum sensitivity test may be made by placing a drop of the diluted serum in the eye and noting the conjunctival

*Read before the Emory University Medical Alumni Clinic, Atlanta, Ga., June 4, 1937.

1. Personal Communication to the Author.

2. Howard, C.: The Art of Medicine, Lancet 1: 754 (Mar. 28) 1936.

3. Moersch, H. J.: The Treatment of Pneumonia, Proc. Staff Meetings Mayo Clinic. 9: 189 (Mar. 28) 1934.

response. Always have a sterile solution of epinephrine, dilution 1:1000, ready for use in case of an anaphylactic reaction.

Next, withdraw ten cubic centimeters of blood from a vein for culture. This is done because a person with a positive blood culture requires approximately twice as much serum as one with a negative one. If the patient is not sensitive to the serum the first dose may be given. Warm the serum to room or hand temperature and inject 1 cc. intravenously over a period of five minutes and then inject the remainder of the ten thousand units slowly. One and one-half hours later inject at least twenty thousand units more. The best practical guide to dosage is to repeat the injection of twenty thousand units every two hours until the pulse rate diminishes, the temperature falls and there is definite clinical improvement. If the patient proves to be sensitive to the serum, it is advisable to inject very slowly ten thousand units intravenously and note the reaction, being careful to have adrenalin ready for immediate use in case of a reaction. It has been found that only one person in fifty thousand can not tolerate the serum at all. If the ten thousand units do not cause a definite reaction then the usual dose of twenty thousand units may be given every two hours until there is improvement in the patient's condition.

If for any reason it is not convenient to type the sputum the patient may be given a polyvalent serum which will be effective against types one and two pneumonia.

The above dosage should be doubled for patients with bacteremia or patients who are pregnant. I have spent considerable time in discussing the serum treatment because the action of the serum is specific and not a hit or miss protein reaction, and it is now considered the most valuable single factor in the treatment of types one, two, five, seven and eight pneumonia.

During 1936 much information has been obtained in regard to the role of the heart and blood vessels in pneumonia. The mechanical factors which cause failure of the heart, other than the myocardial damage, are capillary stasis in the diseased lung tissue, interference with respiration, cough, and emotional disturbances. Peripheral vascular failure is more common than myocardial failure. Peripheral failure is a condition similar to shock in which the walls of the small blood vessels dilate with the result that the venous return to the heart becomes inadequate for maintenance of the circulation. If venous congestion occurs, venesection of 350 cc. of blood is indicated. Hydrotherapy is of benefit because it constricts the capillaries and reduces the temperature. Camphor is an old fashioned drug which should not be used because it has a tendency to dilate the heart in spite of its beneficial effect in drawing blood away from the skin. Epinephrine is of great value for it not only causes constriction of the small arterioles but also dilates the coronary arteries and increases the force of the heart's contraction.

The next important therapeutic agent for this disease is oxygen. The purposes of administration are to prevent or overcome anoxemia, as evidenced by cyanosis and dyspnea, to supply an increased demand for oxygen due to the disease and to decrease cardiac effort. Some physicians advocate using oxygen continuously throughout the disease. This is unnecessary, expensive and sometimes harasses the patient. Indications for the immediate use of oxygen are the advent of cyanosis, a sudden rise in the temperature, distressing dyspnea, or if the pulse rate is high or suddenly rises. The concentration of the oxygen is important. The inspired air must be between 35 and 60 per cent oxygen to maintain the alveolar air at 30 to 55 per cent. The oxygen must be passed through water before passing into the nasal catheter but the oxygen tent is usually equipped with a humidifier. The method of administration has been the subject of much debate. It is now generally agreed that the oxygen tent is the most effective method of administration, but it is not as simple and inexpensive as the catheter method. An improved forked catheter may be used. One branch is passed down each nostril to the level of the uvula. It is unnecessary and irritating to insert the catheter down into the pharynx for the mechanical irritation will cause cough. The mouth should be closed.

The only indications for the use of digitalis in pneumonia are the presence of auricular fibrillation or flutter or an enlarged heart. Do not give digitalis to a patient with a normal heart because it has been definitely proved that digitalis decreases the size of the heart and thereby decreases its

volume output and efficiency as a pump. This is a safe rule because cardiac enlargement is present in every case of a diseased heart, in pneumonia or any other disease.

Morphine has been a sheet-anchor in the treatment of pneumonia through the ages. There are two ways to use morphine in pneumonia. Probably the best method is to give it during the first two or three days to relieve pain and anxiety and to secure rest for the patient. Because of its depressing effect upon the respiration many physicians prefer to use a bromide or a barbital derivative in the early stage of the disease and reserve the use of morphine only when pain is severe enough to require its use. To overcome the depressing effect of morphine it is advisable to give three grains of caffeine with each dose of morphine. Great virtues have been attributed to the use of morphine in pneumonia but it has been proved that it is valueless except to give symptomatic relief.

If there is no peripheral failure the intravenous injection of fifty per cent glucose every four or six hours nourishes the heart muscle and decreases the toxemia to an appreciable extent. A high calorie liquid diet is indicated with careful attention to the elimination of any food which tends to produce flatulence.

The patient should be in a well ventilated room free from drafts with the temperature maintained at about 70°F. This is an infectious disease and an aseptic nursing technique should be practiced throughout its course. If there is a tendency to intestinal stasis and distension it is usually more important to treat the toxemia than the intestinal tract. However, a daily enema plus hot stupes and the administration of a cathartic or laxative which would not produce flatulence are indicated. Tepid sponge baths and the administration of copious amounts of fluids will usually control the temperature.

The following experimental work has been reported: Sebian used the quinine-calcium treatment in thirty cases of pneumonia at the children's clinic of the German University at Prague. It was given intramuscularly in daily doses of 5 cc. It had no effect in fourteen cases of lobar pneumonia but in bronchial pneumonia when the drug was given during the first three days of the disease, the fever fell on the fourth day and all sixteen patients recovered.[4]

Powell reported forty-seven cases of lobar pneumonia treated with x-ray radiation. There was marked relief from the pain and the crisis came on promptly on the fifth day with only one death in the series.[5]

Sir Spencer Lister reported a twenty-four year study on the prophylaxis of pneumonia among miners in South Africa. He used autogenous vaccine on a population of 200,000 persons. He divided his study into three periods: first, from 1911 to 1913; second, from 1913 to 1915; and the third from 1926 to 1934. He obtained good results until 1926, when he proved that the organism causing the pneumonia had apparently changed from a pneumococcus to a mixed infection due largely to the streptococcus, staphylococcus and Friedlander's bacillus.[6]

Some interesting work has been done on the microphagic system of the lungs in pneumonia. Robertson and Uhley made a histologic study of postmortem tissues obtained from forty cases of lobar pneumonia. The first evidence of resolution consisted of an increase in percentage of the large mononuclear cells in the alveolar walls. The large mononuclears gradually replaced the polymorphonuclears. This mobilization of the macrophagic lymphocytes represents an immune response of the pulmonary tissue cells.[7]

John S. Coulter used diathermy as a symptomatic relief of the pain of lobar pneumonia. He reported good results but warned against the use of diathermy at the same time oxygen therapy was being employed.[8] Sinelnikor et al found the blood sugar in twenty-three patients with lobar pneumonia to be between 120 and 160 mgms. during the stage of fever. He used small

4. Sebian, Annemarie: Experiences with Calcium-Quinine Treatment of Pneumonias During Childhood, Med. Klin. 32: 1075 (Aug. 7) 1937.

5. Powell, E. V.: Radiation Therapy of Lobar Pneumonia, Texas State J. Med. 32: 237 (July) 1936.

6. Lister, Sir Spencer: The Epidemiology of Pneumonia on the Witwatersrand Goldfields and the Prevention of Pneumonia and Other Allied Acute Respiratory Diseases in Native Labourers in South Africa by Means of Vaccine, J. A. M. A. 106: 733 (Feb. 29) 1936.

7. Robertson, O. H. and Uhley, C. G.: Changes Occurring in Macrophage System of Lungs in Pneumococcus Lobar Pneumonia, J. Clin. Investigation 15: 115 (Jan.) 1936.

8. Coulter, J. S.: Medical Diathermy, J. A. M. A. 106: 209 (Jan. 19) 1936.

doses of insulin and reported an improvement in the physical well-being of the patients. He also found that the urinary chlorides fell between 0.58 and 1.3 mgms. during the febrile stage but became normal after the crisis.[9]

Bakhsh and Andreason used a solution of 20 to 33 per cent alcohol in normal salt solution intravenously in 25 cc. daily doses. Slight chills followed the injection but the pain in the chest was greatly decreased. The patient's temperature rose one degree but they claim that the mortality was reduced by this method.[10]

Pavel discovered a pathologic diastasuria and diastasemia in the late stage of pneumonia which he explained as being caused by temporary pancreatitis.[11]

Artificial pneumothorax has been used in lobar pneumonia. It is useful only when used early in the disease, preferably within twenty-four hours after the onset, if administered so as to induce and maintain complete collapse of the lung on the involved side. It is not helpful after seventy-two hours and should not be used in patients with known cardiac defects.

Plummer says that there is no evidence to support the claim that heterophile antibody added to pneumococcic sera produces reactions which are beneficial to patients with pneumonia. The use of this antibody increases the danger of allergic reactions.[12] Gundel and Wallbruck reported an epidemic of type one pneumonia in a village of three hundred persons. Nineteen cases developed but the mortality rate was low.[13]

Rhineberg and Kaplan believed that all pneumonias develop on the basis of an obstructive pulmonary collapse. They claim that after the bronchial lumen has been obstructed the air is absorbed in about two hours by the passing blood.[14]

Fishenzon believes that the subcutaneous injection of oxygen is better than the inhalation method because of the occlusion of the pulmonary alveoli. In the past ten years he has treated two hundred cases of croupous pneumonia using between 200 and 800 cc. of oxygen per patient. Oxygen may be given twice daily in severe cases. In children the initial dose is 50 cc. and the maximum dose is 200 cc. There is little danger of embolism with this method. Dyspnea and cyanosis disappear and the blood pressure rises due to the lowering of the viscosity of the blood.

Dr. H. J. Moersch at the Mayo Clinic has used ergot in the treatment of pneumonia with success. Ergot is not new in the treatment of this disease. There is record of its use as far back as 1858. For some unknown reason references to its use in pneumonia disappeared from the literature about thirty years ago, probably because it was not generally appreciated that ergot will deteriorate with time and lose its efficacy. The action of ergot in the disease is not known for its exact physiologic action on the pulmonary circulation has never been determined. It is supposed to constrict the pulmonary vessels, thereby making them less permeable and preventing the ready passage of fibrin into the alveoli. Constricting the pulmonary vessels would also prevent pulmonary toxins from passing easily into the general circulation.

Dr. Moersch used the fluid extract of ergot and ergotole. Ergotole is a sterile preparation which can be given either by mouth or subcutaneously and produces less nausea than the usual preparations of ergot. The dose may be varied from fifteen to forty minims every one or two hours for twenty-four hours.[3]

An interesting prognostic sign in pneumonia is the development of corneal opacity. Death is usually only a few hours away when corneal opacity appears in a patient with lobar pneumonia.

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9. Sinelnikor, S. N., Perchik, P. M. and Doroklova, O. N.: Carbohydrate and Chloride Metabolism in Pneumonia, Klinicheskaya Meditsina 13: 1474 (Oct.) 1935.

10. Bakhsh, I. and Andreason, A. T.: Treatment of Lobar Pneumonia with Intravenous Injections of Alcohol, Indian M. Gaz. 70: 673 (Dec.) 1935.

11. Pavel, I., Radvan, I. and Volovici, B.: Origin of Diastasuria in Pneumonia, Wien. Arch. f. inn. Med. 28: 133 (Dec. 20) 1935.

12. Plummer, Norman: Heterophile Antibody in the Treatment of Pneumonia, J. A. M. A. 107: 499 (Aug. 15) 1936.

13. Gundel, M. and Wallaruck, E.: Die Lobare Pneumonie als Epidemisch auftretende Frankheit, Deutsche med. Wchnschr. 61: 539 (April 5) 1935.

14. Reinberg, H. and Kaplan, A.: Nature and Prevention of Traumatic Pneumonia, Wien, klin. Wchnschr. 49: 560 (May) 1936.

15. Fishenzon, E. Ya.: Subcutaneous Oxygen Therapy in Pneumonia, Vrachebnoe Delo, Kharkov 19: 391 (No. 5) 1936.

CONCLUSION

There is no single agent or method in existence by which every case of pneumonia can be treated successfully. Certain definite procedures are available, which, if used judiciously, will cause a reduction in the mortality rate. I wish to emphasize particularly the use of the specific serum, the use of oxygen, the use of glucose, the proper use of morphine and careful attention to the intestinal tract.

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## PSYCHOLOGIC ASPECTS OF EYE, EAR, NOSE AND THROAT DISEASES*

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Every field of medicine has its particular need for psychology and psychiatry in the pursuit of relief of certain vague and unaccountable symptoms presented by those who are ill. The interrelationship between many manifest physical conditions and the mental state of the individual is obvious even to one with only average medical experience. We are all familiar with the influence of "state-of-mind" over the rate and manner of recovery from illness. It is beyond the comprehension of the writer how any physician can practice medicine without being, in fact, a psychologist as well as physician.

Emotional states have a major influence upon bodily activities of individuals, sick or well. One needs but recall the old adage counseling against partaking food, while disturbed emotionally, to realize the common application of the influence of mind over body. Long continued depressed emotional states can, and will, lead to lowered bodily resistance, so that the individual is more readily attacked by various destructive disease processes.

The attitude with which the physician views complaints presented by the patient has much to do with the formation of that patient's psychologic reaction to his illness. An over-sympathetic attitude encourages the individual to allow his mental processes to become only self centered; yet, one must be very careful not to pass over the complaints in too superficial a manner. Such will help to send another patient to the cultist and, perhaps, lay the foundation for another neurosis. The middle road is perhaps the most difficult, yet the most needed path in modern medicine.

In the older days, a sick man sought the services of his family physician, and unconsciously used him as a leaning post, psychologically. This exceedingly important dispenser of family psychology is fast disappearing with the advent of streamlined education, and mad dash for speed; thus leaving the average American family much in need of psychologic counsel. The sadder part is that these families do not know in which direction to turn for such advice, resulting frequently in unsatisfied desire and the constant formation of misconceptions and psychic complexes. The public of today is more or less in a state of panic when some member of the family suffers a thought-to-be serious illness. Lacking the helpful guidance of the family physician, they are floundering in every direction for help and are too often influenced in their selection of a physician by the glowing reports of a fellow bridge addict, factory foreman, social worker or the like.

Many patients who consult the specialist of their own accord are found to be suffering with a systemic ailment, the manifestations of which would have been only too evident to the general physician had he been consulted first. We attempt to guide such patients back to their family physicians, often somewhat to the patients' surprise. Patients often consult us for treatment of high blood pressure, indigestion and other equally vague designated illness. It is to this influence of rapidly changing public psychology which we most desire to direct your attention.

Surgical instruments, new operations, streamlined pills, hypodermic medication, etc., have kept the pace; the application of psychology to medical practice is lagging behind. Unless each of us assumes the burden of reeducating the patient, we will soon find him within the grasp of the "light-doctor, the rubbing-doctor, or the praying-doctor." Evidence of mass migration of the sick man from the legitimate practitioner into the hands of the quack has never been more apparent.

Speaking in generalities, it is surprising how seldom the general physician takes into

*Read before the Northwestern Division of the Association, Russellville, September 16, 1937.

consideration the manifestation of systemic disease in the form of eye, ear, nose, and throat complaints. One of the most accurate indices of the general state of bodily health is the appearance of the lining membranes of the nose. The average general physician has apparently overlooked this valuable diagnostic aid.

We would like to call your attention to some of the most common psychogenic pitfalls, as expressed by eye, ear, nose, and throat patients. Many of these problems could be circumvented or entirely eliminated by sympathetic discussion of the complaints in question by the family physician, who can influence the psychologic reaction of the public more than the specialist.

EYE

*Astigmatism*: This simple word has been avidly seized upon by the optometrist. When we hear a patient speak of his astigmatism we know that he has been in the hands of the optometrist. The ophthalmologist seldom uses the term. The irregular practitioner plays up this word wholly beyond the conception of the public. The average patient who has been so advised begins his complaints by telling us that he suffers terribly with astigmatism and that his particular case is perhaps one of the hardest to solve. Such was the opinion expressed by the last optometrist who pretended to examine him. It is often extremely difficult to convince a patient that his hyperopia, or myopia, is neither terrible nor severely handicapping, and that eyeglasses will merely enable him to go about this process of living with more comfort.

*Cataract*: Diagnosis of cataract means to the majority of the public inevitable blindness, and causes much psychic trauma. Nine out of ten patients who come to us complaining that they have a cataract are found instead to have a pterygium, or some other proliferative process involving only the external eye. It behooves the general physician to spend a few minutes in ascertaining whether or not there is gross evidence of cataract before allowing the "self-made" or "neighbor-made" diagnosis of such a condition to become fixed in the mind of the patient. Improper diagnosis changes the lives of far too many patients. Inevitable blindness would change the plans of most of you, would it not?

*Muscle Errors*: With the advent of various mechanical aids for use in the treatment of muscle errors, the irregular practitioner has hastened to educate the public through radio and newspapers that eyeglasses are no longer necessary or even to be tolerated in the treatment of cross-eyes, cock-eyes, etc. Commercial exploitation naturally follows. All of you realize full well the possibilities of regenerating a withered and congenitally defective limb. Similiar prospects hold for regeneration of withered and congenitally defective eye muscles. Eye muscle exercises are beneficial in selected cases, the very selection of which usually requires the use of cycloplegics, which optometrists are prohibited by law from employing. Indiscreet application of muscle exercises will lead to bitter disappointment and much psychic trauma, eventually resulting in public misapprehension of the use of such aids in the hands of the legitimate practitioner. The general physician can do ophthalmology a great service by educating his patients concerning the use of these machines.

*Colored Lenses* are a passing fad and are not needed by a majority of those who are now wearing them. Photophobia is a symptom of eye disease, usually corneal or conjunctival, and symptomatic relief, alone, is not now nor ever will be scientific medicine. Temporary use of a shade to protect diseased eyes most assuredly is recommended. However, habitual use of shaded lenses will result in the formation of bad eye habits. I wish to refresh your memory of the mine mule, which, after a few days in the dark recesses of the mine, will, when brought to the surface, dash madly for the mine entrance if given free rein. Mule psychology is, I believe in this instance, applicable to the human. In this modern age glare is accentuated by hard surfaced roads and streamlined windshields, coupled with the "barehead" fad. Three of every ten refractions ask us for shaded lenses. Ophthalmologists most assuredly do prescribe them, but only after deliberation and study of the individual. Optometrists must face temptation in prescribing shade since such adds considerably to the sale price of eyeglasses, thereby furnishing an additional source of revenue. Simple eyeshades sold by the druggist and the 5 and 15c store are beneficial, when indicated, if limited to the smoked glass variety.

The continued use of green, rose, yellow, or blue shades will lead to faulty reception of those respective colors. I need only refresh your memory of Pavlov's dog experiment, in which a bell was always rung at meal time. The conditioned reflex established, soon mere ringing of that bell resulted in copious flowing of gastric juices. The shape of lens and eyeglass frames has very little if any bearing upon the efficiency of sight. To be sure, certain styles appear more becoming to certain faces, thereby adding sex appeal, that most sought after elusive thing of fancy in the hearts of the more deadly of the species. Headaches among school children are often beginning efforts to avoid, unconsciously, the stress and strain of realism; yet, we must be very careful in ascertaining whether or not the day on which the complaint was made was cloudy, and the improperly lighted school room produced eyestrain. Too often school rooms are lighted on one side by a row of windows and on the other by weak electric lights which none of us would permit in our home. Occasionally the school headache is caused by faulty ventilation and resultant rebreathing of air heavily laden with carbon dioxide and moisture. It behooves the physician to make an investigation of these conditions in his locality, since his own children, as well as those of his friends, are the victims.

*Eyelash Dyes* and dressings are for the most part harmless today. Too many judgments have been granted for damages in the recent past for the manufacturers to use active ingredients. Their greatest source of harm lies in mechanical irritation produced by the artificially stiffened hairs and the ever present habit of pulling and pampering with the brow and lashes. This is but another example of the feminine mad pursuit of sex appeal. Hysteria and litigation neuroses do not come within the scope of this paper. Both are adequately covered in modern text-books.

*Eyewashes* all come in the category of patent medicines. They are usually more or less harmless solutions containing some astringent such as zinc, a little boric acid, and enough volatile oil to give an odor. We implore you to refrain from recommending any patent eye wash: first, because the sale and use of patent medicines do not support scientific medicine; and, second, the word is passed from patient to prospective patient that Dr. So and So recommends so and so's eye water for sore eye. Patients will often lose valuable time procrastinating with a simple eye wash, while destructive disease is making its inroads.

EAR

*Tinnitus Or Head Noise* is responsible for much psychic trauma. This is particularly true in early and persistent noises that are ever present during the waking hours. All of us know that tinnitus is only a symptom, signifying nasal, circulatory, eustachian, or systemic disease. We implore that you heed your patient's complaints of head noises, eliminate such causes as ear wax, middle ear disease, eustachian disease, faulty dental occlusion, high or low blood pressure, hyper- or hypoinsulinism, and, where possible, eliminate this source of psychic irritation from your patient's life.

*Deafness* practically always produces mental aberration. However, with proper help through the family physician, as a psychologic leaning post, the patient usually makes a satisfactory adjustment ere total deafness ensues. The average deaf patient is notoriously ill natured and hypersensitive. It is up to you to help convince these patients that seeing, hearing, tasting and smelling are mere highly specialized tools, useful in making adjustment to the life situation. In other words, we must convince them that these functions help us to live, and that we do not just live to hear, smell, see and taste.

*Middle Ear Disease* is a source of much parental anxiety, due to the possibility of mastoid complications. Early incision, proper nursing care, and intelligent discussion with the parent will prevent much psychic trauma.

NOSE

*Catarrh*, the "self-made" or "neighbor-made" diagnosis, is the source of much trouble for the patient and much more for the specialist. When a patient says that he has catarrh, he might just as well have said that he had ancestors or some other all inclusive state of being. Stuffiness of the nose, however transient, is practically always designated as catarrh; yet, the medical profession has no definition for such a term. Nasal stuffiness means either mechanical obstruction, local or systemic disease—frequently

both. Specialists have long since come to realize that the nose is simply the upper end of the respiratory and alimentary tracts. Also, that any disease which attacks any part of these tracts will produce changes in the appearance of the nasal membranes. The red and angry nasal membrane indicates gastric hyperacidity, the pale, hypoacidity; and we know from inspection of these membranes what the general condition of the alimentary tract is. This condition holds with the entire alimentary canal. Red nose means red stomach, red intestine, anus, and even hemorrhoids, if present. So-called catarrhal conditions, when actual mechanical obstruction and disease are ruled out, will generally respond to correction of faulty diet, hyper- or hypoinsulinism. Help us to dispel the use of this cover up term catarrh. Few of us remember that it is physiologic for one side of the nose to be partially obstructed at intervals, alternating every twenty to thirty minutes, allowing the nasal secretions to be collected and expelled, removing bacteria, dust, and other foreign materials. Under such conditions, no spraying operations are needed. An explanation of this normal function to the average catarrh-minded patient usually suffices to put him at ease.

*Sinus Disease*, the dreaded dragon with fire-red tongue, is directly the cause of more misapprehension and anxiety that any other eye, ear, nose, throat condition. The term has been popularized by medical men who were forced to (or thought they were) make a diagnosis without proper examination. The majority of patients who consult us for treatment of sinus disease are found to be suffering from some unrelated condition. The public has become firmly attached to the adage "once a sinus, always a sinus," and the impression will not be easily eliminated. There are many cases of true sinus disease; however, we accidently discover more cases during routine examinations, with no complaints, than are seen with a previously correctly made diagnosis. The fear connected with sinus disease has resulted from the experience of over-operated cases who, because of repeated unsatisfactory operations and lack of education necessary for psychic readjustment, have fallen into the neurasthenic category. When a limb or a part of a limb is removed, the patient usually happily accepts it as gone. Not so with the average over-operated sinus sufferer. He has a better breathing tube perhaps, but he suffers with dry scabs, "boogers," over-aeration, and frequently has a perverted sense of smell. He cannot accept this situation very happily, therefore needs considerable psychologic help in making the decision that he uses his nose merely as a tool to help in making adjustment to the life situation. We agree that it is virtually impossible for one to have an acute upper respiratory infection without involvement of one or more of the paranasal sinuses, yet the majority of these cases clear up spontaneously when sinus aeration occurs concurrent with systemic improvement.

### THROAT

*Clearing Of The Throat* can become a pernicious habit. It is the most common throat complaint, is most often caused by a postnasal drip and is usually another manifestation of systemic disorder. Close inspection will usually reveal little more than thin mucus on the postpharyngeal wall. We must of necessity rule out sinus disease, tobacco smoke irritation and inhalation of dust or chemical fumes. However, the majority of these cases will clear up when the faulty diet has been corrected.

*Cancer Or Tuberculosis* of the throat is a common dread of the public. Nearly everyone knows one or more patients who suffered with one of these diseases. The dread is renewed with each attack of sore throat accompanied by hoarseness. A careful examination will suffice to eliminate entirely the possibility of such disease.

### CONCLUSIONS

It has not been our intention to attempt instruction. We have simply enumerated some of the more common dreads of the eye, ear, nose, and throat patients, and made some effort to point out possible means of correcting such complexes. We direct the attention of every physician present, past fifty, to his mental reaction to persistent nocturia. Most of you have beat a hasty retreat to your nearest urologist brother to have your prostate examined; he has usually, with a knowing smile upon his face, made the requested examination, all the while discussing with you the last meeting you both attended, and then set your mind at ease by telling you to leave off that glass of buttermilk you were in the habit of tak-

ing at supper time. We ask that you give your patients this same privilege that you take, namely, the right to get excited over an imaginary illness. Serve him as a psychologic leaning post, and after you are certain that he is leaning heavily, guide his thoughts into channels that are more healthy. We would advise all of you to purchase a copy of that valuable book, "Nostrums and Quackery," from the American Medical Association, and to place it in a conspicuous place in your waiting room. Call the attention of some of your more intelligent patients to it. It will pay big dividends in helping you to straighten out borderline cases and further prevent the formation of a neurosis in some.

It is a fact that, unless we pay more attention to applied psychology, or make some effort to control the miseducation of the public, we are fostering the very serpent that is gnawing at the vitals of organized medicine. Some of you say that we need the quack and the rubbing doctor to take these hopeless neurotics off our hands. We are all supposed to be too busy to listen to their long tales of woe. Such is not the true situation, however, and we must needs devote more time to this type of patient, recognize the potential neurotic, and do all in our power to steer him right psychically. I implore that you allow your patients to lean more heavily upon you, psychologically speaking.

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## SCABIES*

By
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Scabies is a constantly recurring problem in the daily practice of every physician. It is, as you know, an infestation by an animal parasite, *Acarus scabiei*, first identified, according to Freedman,[1] in 1687 by an Italian, Bonomo. His work was promptly forgotten and the acarus was not rediscovered until 1834, when a Corsican student, Renucci, demonstrated it again.

There are occasional infestations by avian or animal parasites, such as those reported by Sulzberger and others.[2] These cases are probably rare.

The human parasite is host specific and this fact is of great importance in any attempt to eradicate the disease. The female is from 0.3 to 0.4 mm. long and is barely visible to the naked eye as a grayish speck. The male is smaller and seldom seen even with a lens. After copulation the male dies and the female burrows into the horny layer of the skin to lay her eggs. When this duty to posterity is performed, she quietly succumbs. Four to eight days later another generation emerges from the burrows and a new cycle begins.

Like the treponema of syphilis and the gonococcus, the acarus is no respecter of individual or social status. It attaches itself alike to the well-to-do and the "Great Unwashed." It is in the former group, where we are least likely to suspect scabies, that the diagnosis is most often missed. In addition to the failure of suspicion in this class, frequent bathing tends to limit the visible eruption and offers another handicap to recognition of the true condition.

The diagnosis, all too frequently, is covered by that vague triad, acid rash, food rash and nervous rash. Complicating conditions, such as urticaria, impetigo, furunculosis, and dermatitis from previous unsuccessful treatment, obscure the underlying condition in most long standing cases. Failure to pay close attention to the patient's complaint, to insist on a complete inspection with all clothes removed and to search carefully with a hand lens for the identifying twin papules with connecting burrow often lead to error. A positive diagnosis is established by demonstration of the acarus, removed from the glistening vesicle at the end of the burrow. This procedure is seldom necessary.

An excellent working diagnosis can be based on almost any combination of the four points enumerated by Stokes:[3]

1. The burrow is most often found between the fingers or on the external genitalia but occasionally on any part of the

*Read before the Southeastern Division of the Association, Mitchell Dam, October 14, 1937.

1. Freedman: Arch. Dermat. & Syph. 35:1116.

2. Sulzberger, M. B.; and Kaminstein, I.: Avian Itch Mites as Cause of Human Dermatoses; Canary Bird's Mites Responsible for 2 Groups of Cases in New York, Arch. Dermat. & Syph. 33:60 (Jan.) 1936.

3. Stokes, J. H.: Scabies Among Well-To-Do; Some Principles Illustrated by Elite, J. A. M. A. 106:674 (Feb. 29) 1936.

body. This should be identified with a lens.

2. Nocturnal itching is a surprisingly consistent complaint and should always lead, at least, to a suspicion of scabies. This supposedly coincides with the nightly migration of parasites in search of newer and better homes.

3. Distribution of the eruption is very characteristic and can only be determined accurately with the patient stripped and at a little distance from the examiner. There is a marked predilection for the finger webs, the flexor surface of the wrists, the axillae, nipples, belt line and external genitals. The face, palms and soles are almost never involved in adults but frequently are in infants. The dry or scratched papule on the penis is very suggestive.

4. Identification of contacts or source is as important a diagnostic point as it is imperative in successful treatment. It is most unlikely that several members of a family or any closely associated group would have at the same time any of the other itching eruptions often confused with scabies. When looking for contacts it should be remembered that some individuals make no complaint and yet, on examination, present a full blown eruption typical of scabies.

When all of these points have been considered and there is still doubt, we are justified in carrying out a carefully supervised therapeutic test. With close attention to the history, stripped inspection and careful search for burrows with a lens, the diagnosis should seldom be missed.

In the treatment of scabies there are three goals which must be attained to achieve success:

1. Some effective antiparasitic preparation must be adequately presented to destroy the adult parasites and their unhatched young.

2. All infested individuals in contact must be treated simultaneously.

3. All clothing and linen must be thoroughly sterilized by boiling, dry cleaning or pressing with a hot iron. In selecting a preparation for treatment and deciding on the duration of application, consideration must be given the characteristics of the skin to be treated. A fair skin will stand less than a dark skin, a dry skin is more easily irritated than an oily one and children are more susceptible than adults.

Of all methods of treatment, probably the application of sulphur ointment, in 5 to 15% strength, with or without betanaphthol or Peruvian balsam, is the most familiar. This is usually successful but requires several days for a cure and is very objectionable to most patients.

In great favor at the present time is the so-called Danish method, which requires a shorter treatment, gives about 94% of cures in 24 hours, and also causes a dermatitis in approximately 6% of cases so treated.[4] This method has been replaced in the Finsen Institute[5] by a preparation containing benzyl benzoate. The method is clean and effective, and can be used in previously treated cases with sulphur dermatitis with little fear of aggravation.

Kulchar and Meininger report a series of cases treated by alternate applications of 40% sodium thiosulphate and 4% hydrochloric acid, the acid precipitating sulphur on the skin. In the fifty cases reported, cures were 100% and only one case, a blond, developed a mild dermatitis.

There are numerous other remedies, each having its exponents, but, regardless of the method prescribed, instructions about baths, duration of treatment and sterilization of clothes should be given in detail.

The tendency of patients, fearing relapse, to unduly prolong treatment should be curbed by a warning of the danger of chemical dermatitis from over treatment.

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Sulfanilamide—The toxic manifestations of this powerful therapeutic agent have assumed increasing importance with wider clinical experience. The sudden elevations of temperature accompanied by leucocytosis which come on occasionally after a week or more of medication with sulfanilamide have occasioned considerable confusion, but due to the rapid excretion of the drug these may speedily be eliminated by forcing fluids and withholding the medicine. Severe anemia, skin eruptions, personality changes, cyanosis, dizziness, lassitude, dyspnoea—any one of these complications may intervene and in proportion to their severity dictate a modification or an abandonment of the treatment. *Ed., Virginia M. Monthly, November*, 1937.

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4. Greenwood, A. M.; and Reilly, M.: Treatment of Scabies With So-Called Danish Method, Arch. Dermat. & Syph. 35:602 (April) 1937.

5. Goldman: Arch. Dermat. & Syph. 36:140.

6. Kulchar, G. V.; and Meininger, W. M.: Sodium Thiosulfate in Treatment of Scabies, Arch. Dermat. & Syph. 34:218 (Aug.) 1936.

# THE JOURNAL

OF THE

**Medical Association of the State of Alabama**

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

December 1937


## PRINCIPLES AND PROPOSALS OF THE COMMITTEE OF PHYSICIANS

*(Reprinted from J. A. M. A., November 27, 1937)*

The Board of Trustees of the American Medical Association has especially authorized the publication of the following statement:

Following the publication of the report of the American Foundation Studies in Government, a small group of physicians, assembled in New York, developed certain principles and proposals which have since been circulated by a self-appointed Committee of Physicians among the medical profession of the United States, with a view to obtaining signatures in their support. During a period of approximately six months, some 430 medical men have apparently permitted the use of their names. Early in November the self-appointed group of physicians released to the press for Sunday, November 7, a statement of principles and proposals to which the names of the 430 signers were affixed. The newspapers generally heralded this action as a revolt against the American Medical Association, in a great majority of the cases indicating that there was a revolt in behalf of "state medicine." The publication of this manifesto and the attached signatures has been heralded with glee by many of those who have been opposing the American Medical Association in behalf of cooperative practice, sickness insurance, and various fundamental changes in the nature of the practice of medicine. Within the last week another series of proposals has come from another self-appointed group requesting signatures of physicians. This series of proposals includes the suggestion for enabling legislation for sickness insurance.

The American Medical Association is an organization of physicians along strictly democratic lines. Representatives of county medical societies send delegates to state medical societies and these, in turn, send their delegates to the House of Delegates of the American Medical Association. It is possible for any physician, through his delegate, to obtain consideration of any proposal which he may wish to bring to the attention of the House of Delegates. At the Atlantic City session the delegates from New York State presented these principles and proposals, slightly modified, as an action of the House of Delegates of the New York State Medical Society. They were carried before a reference committee and, in several sessions of that reference committee, considerable numbers of physicians presented arguments for and against their adoption. The House of Delegates, however, after thorough consideration of the report of the reference committee, and with full cognizance of the method of development of these principles and proposals, and of the considerations which were involved in their passage by the House of Delegates of the New York State Medical Society, did not accept them. The House of Delegates did, however, point out the willingness of the medical profession to do its utmost today, as in the past, to provide adequate medical service for all those unable to pay either in whole or in part.

Why, then, any necessity for the circulation of petitions presenting proposals for fundamental changes in the nature of development, distribution and payment for medical service? Is there a well designed plan to impress the executive and legislative branches of our government with the view that the American medical profession is disorganized, distrustful of its leaders, undemocratic in its action and opposed to the best interests of the people? Who may profit from such evidence of disorganization? Is there any evidence that the self-

appointed Committee of Physicians and the 430 physicians who have affixed their names to these principles and proposals are any better able to represent the opinion of the American medical profession than the democratically chosen House of Delegates of the American Medical Association—one of the most truly representative bodies existing in any type of organized activity in this country today?

The House of Delegates has given its mandate to the Board of Trustees, to the officers and to the employees of the Association. That mandate opposes the principles and proposals emanating from the Committee of Physicians, and equally the new proposals. If the House of Delegates sees fit to depart from the principles now established, it will be the duty of the Board of Trustees, the officers and the employees of the American Medical Association to promote such new principles as the House of Delegates may establish. Until, however, the regularly chosen representatives of the 106,000 physicians who constitute the membership of the American Medical Association (now the largest membership in its history) determine, after due consideration, that some fundamental change or revolution in the nature of development, distribution and payment for medical service in the United States is necessary, physicians will do well to abide by the principles which the House of Delegates has established. They will at the same time deprecate any attempts inclined to lead the executive and legislative branches of our government, as well as the people of the United States, into the belief that the American medical profession is disorganized.

Members of the medical profession, locally and in the various states, are ready and willing to consider, with other agencies, ways and means of meeting the problems of providing medical service and diagnostic laboratory facilities for all requiring such services and not able to meet the full cost thereof. The American Medical Association has reaffirmed its willingness on receipt of direct request to cooperate with any governmental or other qualified agency and to make available the information, observations and results of investigation, together with any facilities of the Association. Thus far, no call has come from any governmental or other qualified agency, for the cooperation of the American Medical Association in studying the need of all or of any groups of the people for medical service, to determine to what extent any considerable proportion of our public are actually suffering from lack of medical care. The offer still stands as evidence of the willingness of the American Medical Association to aid in finding a solution to any or all of the problems in the field of medical care that now prevail.

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## POSTARSPHENAMINE EXFOLIATIVE DERMATITIS

"Arsenical dermatitis exfoliativa is an entity with which a great deal can be accomplished both by the prophylactic and by the therapeutic approach. For this reason a review of the fifty-nine cases observed at the Los Angeles County Hospital since 1928 is presented." Thus does Epstein[1] begin his consideration of this subject. Nine of the patients presented chancres, eight had mucocutaneous secondary lesions and the remainder had tertiary or latent syphilis. The author stresses the fact that "paradoxically, heavy metals seem to enact a major role in the production of this form of dermatitis" and states that "72 per cent of the patients were receiving intravenous and intramuscular injections concurrently. This type of treatment has its supporters but, from the point of view of complications at least, seems inferior to the alternating measure." He further states that at the Los Angeles County Hospital Clinic the alternating method is used and that this clinic has had but one case of exfoliative dermatitis in the last three years, though 12,000 arsenical injections have been given, and he cites Stokes' dictum that the intensive use of heavy metals greatly increases the reactivity to arsenicals.

The routine therapy used by Epstein was as follows:

1. One thousand cubic centimeters of 10 per cent dextrose and 35 units of insulin given intravenously daily.
2. One gram of sodium thiosulfate intravenously every other day for seven days.
3. One gram of calcium gluconate orally three times a day, given as much between meals as possible.

1. Epstein, Ervin: Postarsphenamine Dermatitis, J. A. M. A. 109: 117 (July 10) 1937.

4. Four grams of sodium bicarbonate orally three times a day.
5. Daily colloid bath.
6. Various soothing creams and ointments.
7. A diet high in proteins, fats and vitamins but low in carbohydrates.
8. Other agents as indicated.

Epstein is not enthusiastic about sodium thiosulfate and says that "this study does not support the claims made for this drug" and he quotes Moore as believing that it probably has no therapeutic value. And he also thinks that liver extract does little good in arsenical poisoning and that abscesses in the buttocks are too prone to follow its intramuscular administration.

Some of the conclusions of the San Francisco investigator are:

"Postarsphenamine exfoliative dermatitis is preventable in most instances."

"Preparation with heavy metals of all patients presenting other than primary or early secondary lesions would probably decrease the incidence of this complication."

"Simultaneous arsenical and heavy metal therapy is more apt to be complicated by exfoliative dermatitis than is the alternating treatment."

"This reaction is most apt to occur during the first course of arsphenamine injections."

"At the appearance of the first cutaneous signs or symptoms, it is often too late to prevent the development of a crustaceous dermatitis."

"The patient should receive immediate hospitalization on the appearance of the dermatitis."

"Dermatitis exfoliativa is most common in white women between the ages of 20 and 40."

"Complications include recurrences, furunculosis, chronic eczemas and mild liver and kidney damage."

"The average mortality in this condition is between 17 and 18 per cent."

"The routine therapy outlined in this paper appears to be efficient, and 10 per cent dextrose intravenously seems to be of more importance than sodium thiosulfate and the intramuscular injection of liver extract in the treatment of postarsenical dermatitis."

Postarsphenamine complications are constantly dreaded and shunned by practitioners who must seek for their patients the beneficient effects of arsphenamine but who must also be everlastingly alert to avoid the pitfalls. The size, number and frequency of the injections constitute a problem that taxes the skill and judgment of even the most experienced physicians. It is not too much to hope that in time chemical tests of the blood will be evolved which will definitely indicate when arsphenamine can or cannot safely be given. Efforts along this line are being made but at present there is no such test that is simple, inexpensive, definite and capable of widespread application. And, until such a procedure is at hand, it will be well for those who treat syphilis to heed the excellent advice of Epstein.

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## THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

### MEDICAL CO-OPERATION WITH THE PUBLIC HEALTH PROFESSION*

By
J. N. BAKER, M. D.
State Health Officer

First, let me state that it is a great pleasure and a flattering compliment to be given the privilege of appearing before this professional group and of discussing with you, in quite an informal way, some of the problems of mutual concern and interest to the medical profession and to health workers. The reason for my being with you today may likely be explained on two counts: first, because of a close and personal friendship existing between your very able Commissioner of Health in Detroit and myself since my first appearance in the health field nearly eight years ago; and secondly, it so happens that in the state from which I hail, and in which I am now serving as State Health Officer, there exists an anomalous and unique legal submergence into organised medicine of very many, if not all, of the responsibilities incident to the administration both of public health and of medical licensure. That is to say, the State Health Officer, elected by and from the membership of the State Medical Association, is made the executive officer of organised medicine, which group, in turn, is vest-

*Address delivered before a joint meeting of the Wayne County Medical Society and the Health Department of the City of Detroit, November 10, 1937.

ed, by law, with the direction and control of these two very important activities; or, to put it in still another way, the State Health Officer automatically becomes the official spokesman and representative of organised medicine in the discharge of its legal duties and responsibilities to the state and to the public. One is likely to exclaim: "Rather a staggering load with which to saddle organised medicine." It is. The record, however, thus far, shows that these obligations, imposed by the people on the shoulders of the medical profession, have been met by it in such a spirit of altruism and of earnest desire to render a distinct public service that the succeeding legislatures have not seen fit to make alterations. Again, one might pertinently ask: "How did it come to pass that the responsibility for health work and the legal machinery for its enforcement were given to a particular professional group?" This plan of administering health affairs in Alabama has been in operation since 1875 and is largely the creation of one man's brain—Jerome Cochran—the father and founder of Alabama's present system. One should bear in mind that, at the period which we are now considering, organised public health had really, in only a very small way, come into being, and that the medical profession in none of the states, and certainly not in the South, had attained a high degree of development or organisation. At this time Cochran was practicing in Mobile, serving also as Health Officer of the City of Mobile. In this latter capacity he had perennially to tussle with epidemics of smallpox, yellow fever, malaria, as well as other things of a pestilential nature, which were frequent and unwelcome visitors to all of our Southern seaport towns. His sole backing came from a lay board of health, commercially minded, and always more interested in the preservation of trade than in the stamping out of any scourge which might be lurking in their midst. It was under circumstances such as these that he conceived the idea and boldly asserted that leadership in all public health activities should properly be vested in the medical profession—a group professionally and technically trained and upon which society had a right to lean in matters pertaining to community health just as it had learned to lean upon it in matters of individual health. Spurred on by this conviction, be busied himself with the rather difficult task at that time of organising the doctors into medical societies in every county of the state. This being done, he presented to the State Medical Association, at its annual meeting in 1871, his contemplated plan for having all health activities, both state-wide and within the counties, directed and administered by purely medical boards of health—such boards to be selected by and from the medical profession.

The members of his own profession, when the plan was first presented, shuddered and demurred, fearing to assume so great a responsibility, but finally yielded to Cochran's superior judgment and wisdom. Upon approval by the State Medical Association, the plan was presented, in 1875, to the General Assembly of the state, and, after careful scrutiny by this body, received its sanction and approval. It would be difficult now, I fancy, if not quite impossible, to convince a modern-day legislature of the wisdom of delegating to any particular group so great a responsibility and authority; and for the very simple reason that, with legislative bodies, methods of easy political control are likely to transcend in importance methods of administrative efficiency. The fact remains, however, that this particular plan has worked in Alabama and that for more than half a century the medical profession has so altruistically and unselfishly discharged these obligations that no ripple of murmuring complaint has come from either the people or the legislature.

It is an interesting observation that the only opposition to the plan sprung from within the organisation itself. This came some twenty years ago when modern official health systems were being rapidly developed. It was the sincere conviction of some of the members of the medical profession that the time had come to pass back to the people this responsibility and charge, and to recommend the setting up of a health system along lines similar to those operating in other states. The Association, in 1915, after careful consideration and debate, definitely rejected the proposed alteration. As stated above, it will at once become apparent that the philosophy of this scheme of organisation rests upon the irrefutable postulate that, in the administration of a service so highly technical as the public health, those charged with the responsibility and authority for such administration should possess the requisite training and knowledge of the

sciences embraced by such technical service. While it is true that in the practical administration of modern systems of public health other scientific fields must be freely drawn upon and utilised—particularly that of engineering—yet it is also true that these agencies and their techniques but contribute to the ultimate end sought; viz., the control and eradication of disease, whose programs, to be sound, must be built upon scientific medical discoveries and research. Further, the success of this particular plan of administering health protection to a state hinges largely, if not solely, upon the interest, loyalty and leadership furnished through the medical profession. These failing, the system itself will fail.

Briefly, what are some of its advantages? The most important, likely, is the removal of the administration of health affairs from the general political atmosphere. Continuity of planning, continuity of long-range, sound programs for health protection, cannot be preserved in the presence of a never-ending change at the top. Loyalty to an organisation and to its chief, a keen interest and devotion to duty on the part of each individual to his particular task—essentials so necessary for the smooth and efficient functioning of any health service—cannot thrive in an atmosphere where security of tenure is being perpetually threatened. It has been said that the best way for a health department to stay out of politics is for the health department not to get in politics. While no one would be inclined to question either the soundness or wisdom of this statement, yet, the fact remains that many health departments, and possibly not from their own choosing, find themselves enmeshed in politics to varying degrees. Sooner or later deep political entanglement will react to the detriment of the efficiency of any health department. Proper leadership within health departments, seeking to bring about enlightenment of the general public as to the need for divorcing health departments and their personnel, as far as possible, from such influences, will often go far toward remedying the situation. Rigid adherence to the practice of employing only properly trained personnel for each particular task and an explanation by the administrative official as to the need for such a policy, when importuned by some influential party, should be understood and appreciated by the average citizen.

The time now seems particularly opportune, when the Federal Government is subsidising the several states for the purpose of building up and strengthening their health departments, for health administrators and governmental agencies to adhere to the axiomatic principle that any service so highly technical as that of health can only be built through the employment of properly trained personnel; and, in such struggle, the voice and influence of organised medicine can have great weight and should be registered on every appropriate occasion.

Another distinct advantage which flows from giving a real voice and responsibility to the practicing physician in official health matters is the stimulus afforded him because of such voice and responsibility. In actuality, under such a plan, every reputable physician becomes an integral part of the health machinery of his own county and of his state. It is an inspiration to any health official—as has many times happened in Alabama—to have organised medicine boldly and frankly championing the cause of the official health department. It is common knowledge that health programs, however meritorious, are likely to go on the rocks without the sympathetic understanding and support of the practicing physician. Appreciating this basic fact, the wise health administrator seeks first the counsel and support of the practicing physicians before attempting to launch broad programs of control for specific diseases threatening the entire population. More and more should this principle be recognised and this approach be made, both by society and by government, as effort is made to raise and improve the present level of human happiness and efficiency through the application of scientific discoveries in the field of medicine. One of the potent causes for the present-day discontent is the lack of proper machinery for a more equable distribution throughout all strata of society of these newer scientific weapons for the improvement of mankind. These weapons can only be successfully employed when placed in trained and skilled hands. The medical profession can afford neither to ignore this unquestioned trend on society's part nor to fail to make the real contribution looking towards a satisfactory solution which its training, talents and traditions place it in strategic position to make. In the struggle to devise proper plans and machinery for

coping with certain ravaging communicable diseases from which no human can boast complete immunity—such as pneumonia, tuberculosis and the venereal diseases—all having distinct public health implications and in the control of which the factor of *treatment* plays so important a part—it is an unquestioned advantage to have the head of the official agency responsible for the administrative aspects of the program fully conversant with the problems and economic difficulties confronting practicing physicians. No thinking physician can look upon the present-day trend of scientific medicine and fail to grasp the fact that it is becoming more and more *preventive* and *communal.* Modern society insistently demands that the enormous storehouse of scientific knowledge brought to light within the past century be universally applied to its needs and betterment; it is, to-day, unquestionably more body-minded and materialistic, made so by the universality of educational facilities now at its disposal.

Add to these two factors—science's mastery, particularly in the realm of medicine —of the heretofore hidden secrets of nature, and the myriad channels for knowledge dissemination—the *state's* awakened consciousness as to the need for extending to all its citizenry these beneficent forces of medicine—and one has at least a partial explanation for the bewildering maze of perplexities in which the physician of the present generation finds himself steeped. The problem of proper adjustment and orientation is, concededly, difficult; and yet, a recognition and frank acknowledgment that these forces are about us and busily at work should stimulate the medical profession to put forth a supreme effort towards finding a satisfying solution. Probably no factor is now more important than an appreciation on the physician's part of the statement made above, that modern medicine is rapidly becoming pronouncedly more and more *preventive* and more and more *communal.* No longer should he view the disease which his patient may chance to harbor as an *entity,* to be catalogued and dealt with to the exclusion of the individual himself, the family or the community. True enough, his patient's interest should be his first concern; but, also, in his routine ministrations to the individual his range of vision should be so expanded as to include all of the social implications which a particular human ailment might involve, be it physical or mental. The cultivation of this attitude of approach by the practicing profession places it in position to render the greatest service to the individual, the family, the community and to society. To the medical profession's credit it can be truthfully said that this broader vision of health —*positive* and *constructive* health, which means something much larger than the negation of disease—is fast taking root within its ranks. With the full maturation of this concept will come the happy day of complete understanding and unity of the forces of medicine, both *curative* and *preventive;* the one acting in complement to the other without conflict and without competition. Moreover, in such a scheme, the practicing or family physician's role will assume greater importance and sharper definition; for he, standing as the outpost of both, can be made, potentially and in actuality, the most influential factor in the modern-day medical picture. If, then, the statements and principles above enunciated be correct, the immediate problem calling for solution is this: How can the medical profession and the official health administrators bring about that degree of co-operation and integration necessary for the solution of those problems which, while having definite and important public health aspects, have heretofore been largely a matter of individual responsibility? Immediately one's mind reverts to the public's and the state's present-day demands for active interference in the control of cancer, of the pneumonias and of the venereal diseases. Certain it is that, if this challenge is to be successfully met, co-operation of the finest and fullest sort and from all quarters must be had. Already in the sphere of two important socio-medical problems—mental disease and tuberculosis —society, recognising its obligations and its rights, has, with the aid of the medical profession and of government, striven to find the answer. Might not the knowledge and experience gained in coping with these afflictions of mankind serve as beacon lights to guide our faltering footsteps in an effort to find the solution of these newer and border-line problems which are now confronting both the medical profession and the health administrator?

Webster defines the verb co-operate as "acting jointly with another or others." Theodore Roosevelt, on one occasion, when

pointing out the need for team-work and co-operative effort, exclaimed: "The grandest word in the English language is *together*." This is the type of co-operation which the earnest health worker longs to see effectuated between medicine and public health and which must form the basis of programs for the control of certain diseases which seemingly tend to impinge upon the domain and the security of the practicing physician. Co-operative programs directed against these newer problems mentioned above must provide the machinery for his integration by actual participation, on his part, in such programs. The medical aspects of the ever increasing load of indigency; control measures for cancer, for the pneumonias, for the venereal diseases, and for tuberculosis will all depend for their success upon active medical participation, a clearer understanding and a sharper definition of the sphere of activities of the two groups concerned. It would seem, then, that the time has now come for this broader concept of co-operation—of "acting jointly with others"—to be further expanded so as to include the actual participation necessary, on the medical profession's part, to attain the end sought.

Let us now briefly consider how these principles may be applied to the further curbing of one of our most menacing present-day problems—tuberculosis. Even though we may have cause for pride in the strides made, since the turn of the present century, in reducing this disease from first to seventh place as the leading cause of death, there still remains much to be done, if our dream of total eradication is to come true. From 1898 to 1908 the death rate from tuberculosis dropped one-fourth; in the next decade—1908 to 1918—it dropped one-third; from 1918 to 1928, it dropped one-half. Since 1918, the rate in the United States has dropped from 150 to 55 in 1935. Today we stand, seemingly, at a point midway up the steep incline; the rest of the way may, or may not, prove the most difficult, depending largely upon the wise use of all the implements and forces now at hand.

In the light of past experience and present knowledge, it may be categorically asserted that in any program looking to the adequate control of tuberculosis, two factors are quite essential: (a) *Early diagnosis* or recognition of the disease, and (b) *the proper handling of the known case*, after discovery. As stated above, the socio-economic aspects of this disease have figured so tremendously that society, speaking through its governmental agencies, has sought a greater degree of security by making, through many approaches, contributions directed particularly toward providing facilities for the handling of the existing, known cases. As a consequence, we have, today, hundreds of governmentally owned institutions, operated at the tax-payer's expense. This contribution has proven a great boon to humanity and has likely figured conspicuously in the encouraging and almost universal decline in the incidence of the disease. However, statisticians have estimated that the average case of tuberculosis, diagnosed within the first six months of its appearance, costs some one—the patient or society, or both—approximately $2,750; should the disease not be detected until the twelfth month after its onset, the cost rises to $3,125; if more than one year is allowed to elapse before the first symptoms manifest themselves, however inconspicuously, the cost mounts to $3,950. When it is recalled that during 1935 there were 70,080 deaths from this disease and an estimated 500,000 recognised cases under treatment, one can appreciate the staggering financial handicaps imposed by this disease upon society. It is my understanding that the *second* essential stated above—the physical facilities for hospitalisation and treatment—has been adequately met by your municipal authorities; Detroit now having at least two available beds for each annual death. Such an accomplishment is indeed commendable and is a speaking tribute to the interest of your people and the progressive leadership of your health department and your city government. This important phase of your control program having already been provided for, we now see, in Detroit, a marshalling of forces for a frontal assault on the *discoverable sources of infection—the first* essential set forth above.

In recent years the thoughtful student, in considering all phases of this problem, has been both impressed and discouraged by the large percentage of medium and fairly well advanced cases seeking, for the first time, admission to institutions. Despite the scientific weapons now at our disposal for early

recognition, the evidence clearly indicates that the use of these is neither sufficiently understood nor judiciously and timely applied. Potter has pointed out that, despite the fact of fairly prompt action on the part of patient and physician *after symptoms had actually appeared*, 84 per cent were diagnosed as advanced tuberculosis, 14 per cent moderately advanced, and only 2 per cent as minimal. From such figures, which show that less than one out of five of reported cases are minimal, one is forced to the conclusion that the commonly accepted symptomatology of this disease cannot and must not constitute a criterion for early recognition. Some one has wisely remarked that early tuberculosis is "*to be seen, not heard*," implying, of course, the unreliability of symptoms, of signs and of the stethoscope. The explanation for this unreliability is to be found in the pathological behavior of the tubercle bacillus, the sole cause of tuberculosis. When this bacillus invades the body, it does not multiply upon the surface or even in the superficial layers of the mucous membrane; it promptly plunges to the deeper tissues and, as it multiplies, is surrounded by a protective wall of cells, thus creating the well known "tubercle." There it may, and often does, lie dormant for an indefinite period—even throughout the life of its host. Not until this defensive wall gives way, through caseation and ulceration, can the imprisoned germs escape to the outside world and prove a menace to others. Fortunately for the human host, for his family, and for the community, this lesion, more often than not, eventually heals without breaking through to the external air passages. This peculiarity of the tubercle bacillus should be constantly borne in mind both by the clinician and by the health administrator, for the reason that it makes the disease—tuberculosis—more amenable to control by isolation of the active case than obtains in other communicable diseases, such as diphtheria or scarlet fever. Since, then, for the detection of the early, pre-ulcerated or "seedling" lesion, reliance cannot be placed upon symptomatology and physical findings, whither shall we turn? Fortunately again, modern science has placed at our disposal two technical methods of greater refinement and precision—the x-rays and the tuberculin test. If satisfactory further progress is to be made in the battle against this ubiquitous enemy, these newer refinements must be more universally and generally understood and applied than has hitherto been the case. It is for this purpose, as I understand, that adequate funds have been appropriated and the machinery set up in this city. Your health department has assumed the administrative responsibility of an unusually intensive case-finding program, hoping, by the more widespread application of these devices, to bring about an even greater reduction of the incidence of this disease in your community. Integrated with, and fundamental in making your case finding program useful must be machinery for seeing that the discovered cases are brought under adequate bacteriologic control. This means provision for hospitalising, during an initial period, of cases for collapse therapy, and for a longer period of refractory cases or those with poor home conditions, and provisions for professional care at home of suitable cases. With a program of control not unlike the one now being launched by you, Cattaraugus County, New York, within seven years, reduced the mortality rate of this disease from 70 to 28 per 100,000. In your appeal to the public for financial support of this phase of the program you have wisely stressed the ultimate financial gains to the tax-paper through reduction in institutional costs. To my mind, one of the strong factors making for the ultimate success of this program is the provision for the integration and financial participation of the practicing physicians. Such a first-line defense, once imbued with the public health preventive spirit, properly drilled in the modern techniques applicable to tuberculosis control and feeling a personal responsibility in the program because of being an integral part of its machinery, should quickly prove its value and worth. However, this first-line defense, composed of hundreds of active, practicing physicians, making intimate daily personal contacts with thousands of individuals, must first be made conscious of the important role they are expected to play in the contemplated warfare. To enable them to satisfactorily and efficiently do their part, not only should they be made familiar with the details and objectives of the program, but—and this is even more important—they should receive intense and minute coaching, at the hands of tuberculosis experts, in the

techniques which they may be called upon to employ, the indications and limitations of such techniques, as well as the great value of modern collapse therapy when applied to many early cases of tuberculosis. In short, a sufficiently long "refresher course" in this particular disease must be made available, so that each physician will become so tuberculosis minded and so tuberculosis conscious that no enemy sneak-thief, however well disguised, can or dare pass this outpost. This particular phase of your program is, to the speaker's mind, most important, and it is his understanding that the details of such instruction have been amply provided for.

Suppose, for example, that as a result of this aroused and quickened interest on the part of the practicing profession of your city, each of you were instrumental in bringing to light and to treatment but one early case, think of the protection and saving to your community, the gratitude of those patients and the satisfaction to yourselves! While here, in your city, the special hospital facilities for the tuberculous may be ample, this situation does not prevail throughout the country generally; in fact, at most points and in most states, adequate facilities are woefully lacking. Could we but double or treble the proportion of cases diagnosed in the minimal stage, through intensity of our diagnostic efforts, many of these might well be handled in general hospitals or in ambulatory clinics, when found suitable for collapse therapy, thereby materially lightening the tax-payer's burden in the maintenance of special hospitals. As Health Officer of a predominantly rural state, in which a program of hospitalisation, at state expense, has never been developed, I have been particularly interested in the possibilities of a fuller utilisation of the forces of the medical profession, of the general hospitals and of our now completed county health organisation, supplementing the efforts of our traveling state diagnostic clinics and our small district sanatoria. Already the response to our rather feeble efforts along these lines, both on the part of the medical profession and the public, has been most encouraging. One can see at a glance that, with our nearly three million population and an estimated number of some 12,000 to 15,000 open active cases of tuberculosis, what a stupendous financial burden would be imposed upon the tax-payer were effort now made to provide special hospitals at state expense. However, it should here be added that, while the principle that responsibility for the tuberculous is primarily a local one and should be financed as far as possible through local agencies—upon which principle your present program in Detroit is based, the state recognises that it, too, has a responsibility and provides aid to counties by means of a subsidy for the maintenance of district and county hospitals. The experience of our diagnostic clinics shows that the majority of the cases checked by them are being referred by practicing physicians. If, therefore, their interest and understanding of the most modern concepts of tuberculosis can be further quickened and if the now squeamish attitude of general hospitals and the public can be softened so as to permit certain selected cases to be surgically cared for in general hospitals, we are hopeful that still further progress can be made even in the absence of adequate sanatoria facilities.

But, already, I have spoken too long. I have intentionally given you this little insight into our problem, by way of contrast, in order to show how widely the many approaches to a solution must vary, depending very largely upon available resources at one's command. In this warfare against tuberculosis, one powerful factor remains open to every administrative health officer —the practicing physicians of his community or of his state. All of us interested in the administrative aspects of health work will watch, with the deepest concern, these efforts, on Detroit's part, to make the fullest utilisation of the forces of organised medicine and with the earnest hope that out of your experiences may come valuable lessons for our guidance.

## ANOTHER WARNING

In the May Journal, the profession was warned against one, S. R. Ray, purporting to represent Continental Press, Inc., Chicago—a nonexistent institution.

Another has appeared, G. A. Thornton, who, in offering publications to members, states he is with the Atlas Sales Co., Philadelphia. Whether one and the same is not known but the Association is urged to beware, since, in return for money paid, nothing is received. There is no Atlas Sales Co.

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

Cooper Brougher, Acting Director

### PRECIPITATION TESTS IN THE DIAGNOSIS OF SYPHILIS

Soon after the adaptation of the complement fixation reaction to the serodiagnosis of syphilis by Wassermann, and Neisser and Bruck,[1] Michaelis[2] described a method for producing visible precipitates with syphilitic serum using saline extracts of syphilitic liver as an antigen. The possibilities of a gross precipitation test in the diagnosis of syphilis were overlooked for several years while numerous improvements were being made in the Wassermann test. In 1910, Jacobsthal found that, when an alcoholic extract of either syphilitic liver or guinea pig heart was diluted with salt solution and added to syphilitic serum, microscopically visible aggregates of lipoid particles were formed.

With the introduction of the Meinicke, Sachs-Georgi, and Vernes precipitation tests about 1918 the possibilities of this direct method were further demonstrated. These tests quite generally involve the use of dilute, transparent suspensions as antigen. Since the diagnostic criterion is the gradual formation of a precipitate in an originally optically homogeneous serum-antigen mixture, and as long incubation periods are usually required to make the aggregates visible, these tests may be classed as slow precipitation tests. They have therefore failed to recommend themselves to serologists generally as satisfactory substitutes for the Wassermann test in the diagnosis of syphilis.

There followed in the period 1920-1930 a series of rapid precipitation tests among which are those of Kahn, Bruck, Dold, Hecht, Sachs and Wetebsky, Scaltritti, and Weiss. In these, the antigen dilution is a more or less concentrated, macroscopically heterogeneous suspension of aggregated lipoid particles. In negative serum these aggregates redisperse to form an opalescent, but optically homogenous, translucent colloidal suspension; in positive serum, however, they rapidly aggregate to form a visible precipitate. The one important factor distinguishing this group of rapid tests from the previously described group of slow tests is the high concentration of lipoid in the antigen suspension. The instability of this suspension, the speed with which the particles aggregate in syphilitic serum to form a visible turbid precipitate, and the pronounced accelerating effect of shaking on the aggregation all follow from the increase in the number of antigen particles per unit volume. These tests are, generally, quite satisfactory.

In recent years precipitation tests of a third type have been described by Muller, Hinton, Kline, Meinicke, and Eagle. These are rapid precipitation tests which vary from those just described in that the antigen is denser and the tests are, for the most part, slide reactions which are read by means of a microscope. In negative serum the particles of this antigen redisperse to form a stable but distinctly opaque rather than translucent suspension. When the particles aggregate, as they do in syphilitic serum, they form a few dense clumps of lipoid floating in clear serum.[3]

As with the Wassermann test in the early days it was thought that precipitation tests were direct immunity reactions with the *Treponema pallidum* furnishing the antigen and the syphilitic serum the antibody. However, it was shortly found that both reactions were non-specific in the sense that a specific antigen was not necessary and that these non-specific antigens (alcoholic extracts of normal tissue) fortified with cholesterin were far superior to any antigen made from extracts of syphilitic tissue containing many treponema. In the immunity phenomenon, specific antigen is employed with its homologous antiserum, and the resulting precipitate consists largely of serum globulins; in precipitation tests for syphilis, however, an alcoholic heart-extract antigen is employed with syphilitic serum and the precipitate consists largely of lipoids.[4] The

1. Wassermann, A., Neisser, A., and Bruck, C.: Eine serodiagnostesche Reaktion bei Syphilis, Deutsch Med. Woch. 32, 745, 1906.

2. Michaelis, L., Pracipitinreaktion bei Syphilis, Berl. Klin. Woch. 44, 1477, 1907.

3. Eagle, H.: The Laboratory Diagnosis of Syphilis, C. V. Mosby Co. St. Louis. 1937.

4. Kahn, R. L.: The Kahn Test, Williams and Wilkins Co., Baltimore. 1928.

reaction is essentially a flocculation of the antigen. Syphilitic serum more readily flocculates certain inorganic and organic electronegative colloidal solutions, emulsions and suspensions than does normal serum.[5]

Despite the necessary identification of each of the precipitation tests by the name of the various serologists sponsoring them, not one of these tests can be considered as a distinct entity. Each reaction in turn represents a combination of some of the features of those previously described, plus some additional technical details found by the particular serologist to be advantageous. The numerous precipitation tests differ in the same sense that Wassermann technics differ from laboratory to laboratory; not in any fundamental respect but in those variables that determine the sensitivity and specificity of the reaction. Precipitation tests have an apparent simplicity, but variables are numerous, and by suitable adjustments any number of combinations can be made which will yield satisfactory results. Although these combinations represent different technics, they are not distinct tests.

The Wassermann test requires the careful preparation of five main ingredients: antigen, patient's serum, complement, red blood cell suspension and amboceptor. The precipitation test requires but two main ingredients, antigen and patient's serum. The precipitation test is much simpler in detail than is the Wassermann test. The best of the precipitation tests are perhaps more sensitive than the optimum Wassermann technic now available. Native complement and anticomplementary action of certain sera which markedly affect Wassermann results have no effect on precipitation tests. If the above considerations were the entire story, there could be no alternative but to discard the Wassermann entirely. There are, however, other facts: In the first place the precipitation technic seems to yield a higher proportion of technical false positive and false doubtful reactions in the hands of the average worker than does the Wassermann test. Secondly, certain sera from known syphilitic patients give consistently negative results with precipitation tests, and consistently positive Wassermann reactions and are only detected if the latter test is performed. Finally, the ice box spinal fluid Wassermann, with a highly fortified antigen and large quantities of fluid, is considerably more sensitive than the precipitation phenomenon on unconcentrated spinal fluid.

Time and facilities permitting, the optimum procedure is to carry out both a Wassermann and a precipitation reaction on every specimen examined. Not only does this provide a valuable mutual check against laboratory error, but, since each test detects a few sera missed by the other, the combination makes for maximum sensitivity as well.

No laboratory method should be accepted by physicians as the final criterion in the diagnosis of any disease without due regard to clinical manifestations. Any method, assuming that we had any that were perfect, would lose its perfection when performed by human hands.

5. Kline, B. S.: Microscopic Slide Precipitation Test for the Diagnosis and Exclusion of Syphilis, Williams and Wilkins Co., Baltimore. 1932.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### COMMUNITY IMMUNIZATION FOR TUBERCULOSIS

The ways and means are available whereby the individual can immunize himself now against such communicable diseases as diphtheria, smallpox, typhoid fever and whooping cough, but not in the case of tuberculosis.

With this disease he has to resign himself to accepting the chance lottery that he may at some time contract tuberculosis from walking, active, expectorating cases.

The reason for this lies in the fact that the community as a whole has not put into practice the strategy, the technique, the physical and financial outlay necessary to eradicate this disease. Its failure to so function also is a failure to insure itself against this disease as effectively as though a vaccine for immunization had been developed.

Enough is known of the habits and characteristics of the tubercle bacillus to delegate it to oblivion, but the problem of necessity is a community one and it can draw no color line as the negroes are associated with the whites in many capacities.

Until all foci of infection can be known and controlled, either by isolation or collapse

therapy, it is futile to picture much progress in eradicating this *Number One Public Health Enemy.*

The State Department of Health offers a diagnostic service available to the entire medical profession of the state. The magic eye of the x-ray, that is able to detect the earliest smolderings of the disease in most instances, is offered to the profession by the state travelling chest clinic which visits the counties at intervals.

The containers for sputum specimens are supplied by the State Department of Health and the main state laboratory and its eight branch laboratories are available for free diagnostic work for the physicians.

However, this diagnosing, locating and cataloging of tuberculosis cases is only the bare foundation work in the procedure of community immunization against tuberculosis.

While the rounding up, isolating and treating of these cases is a local problem of no small dimensions, the state is not unmindful of a certain responsibility. It has within its laws the legal framework and authority for matching local support of patients in a tuberculosis sanatorium up to 75c per day per patient. In order words, it is a state subsidy for aiding progressive alert communities to partially maintain patients in recognized sanatoria.

Efforts are under way by the State Department of Health to jar into activity the influential people of several localities and show them their community smugness and unawareness or ignorance of known scientific facts is now slaughtering surprising numbers of their fellow citizens.

They must take up the offensive and attack or destroy this deadly foe before it kills, not only unknown individuals in their community but before it makes inroads in their own family or social circle. Tubercle bacilli are no respecters of race or social status. H. T.

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## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### RENDERING PUBLIC SERVICE

Like any good business organization, the Bureau of Vital Statistics endeavors to render prompt and courteous service. With few exceptions, requests are acknowledged and information furnished within 24 hours. In order to insure continuous service, the state office is open for business between 8:30 A. M. and 5 P. M. daily, except on Saturdays when it closes at 12 noon.

The value of birth and death registration is demonstrated daily by the hundreds of requests received in the mails and in person. Because registration at the state office in Montgomery has been maintained for well over a quarter of a century, it is generally taken for granted by most persons that their birth is on record. In earlier years, when the value of registration was not as well recognized as at present, many births and deaths were unrecorded, except as might have been done in family Bibles, many of which have been lost or destroyed. This explains, in part, why numerous requests for early records of births and deaths cannot be complied with.

Service is rendered many who wish to retire on pensions. Not infrequently railroad men and others request records showing proof of age for that purpose. With the constant increase in pension systems the demand for such records will increase.

The settling of estates and the payment of life insurance is often dependent upon the facts given on the certificates of birth and death. In fact, the greater proportion of certified copies of death certificates are issued for insurance purposes. Thousands of copies have been issued in connection with the requirements of the U. S. Veterans Bureau in paying compensation to veterans.

If a record is on file in the Bureau of Vital Statistics, it can usually be located in a few minutes through the use of an efficient index system.

Proper information must accompany the request, if the record is to be found. If words have been misspelled or the facts are in error, then it may be impossible to locate it. A bulletin entitled "Birth and Death Registration," telling how to secure a copy of a record, how to place a birth or death on record and other interesting facts, has just been published. A copy will be gladly furnished on request.

The volume of service rendered is indicated by the fact that in 1925 there were issued 1,517 certified copies of birth and death certificates—in 1936 (the last year for which data are available) 3,792. This represents an increase of approximately 150

per cent. In 1936, certifications of age for employment purposes were issued to 1,881 persons. Almost 30,000 records were searched in the files during 1936. The original certificates are bound in durable volumes containing 500 each and stored in a fireproof vault.

All certificates of birth and death are carefully examined on receipt. If found to be incomplete or in error, an attempt to complete or correct the record is made by special query. Better service could be rendered if those who fill out certificates of birth and death would always be careful to write legibly. Special attention should be paid to correct spelling. Many complaints are received from parents, upon receipt of a birth notification blank, stating that some item as it has been recorded on the certificate is incorrect. An average of 65,000 notices are sent to parents each year stating that the certificate of birth of their child has been received, indexed and bound for preservation.

Many requests for miscellaneous information are received from school children, teachers, libraries and universities. Not infrequently physicians are assisted in the preparation of papers on special subjects.

Each month a statistical bulletin is published which shows the number of births, stillbirths and deaths reported and the death rates from the leading causes. A comprehensive annual report is also published. It is anticipated that the annual report for 1936 will be published late in December.

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## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### CARE OF THE PREMATURE BABY

A premature baby challenges the physician's skill and demands diligent and understanding nursing care. Starting life unfavorably conditioned, its future and even immediate survival depends on prompt recognition, protection from infection, the maintenance of evenly tempered and humid air; and, what is most essential, appropriate and adequate feeding.

Elaborate equipment is not essential. Knowledge and serious medical purpose save many premature babies. Very few cases are hopeless and fail to respond to suitable management. Early recognition of a premature baby is of utmost importance and upon this factor to a great extent, depends his ultimate fate. Parenthetically, failure to recognize an eight months old premature baby and subsequent failure to administer adequate care is a likely explanation of the age old belief that a seven months old baby is stronger and has a better chance of living than does an eight months old baby. The premature baby usually weighs less than five and one-half pounds and is less than seventeen inches in length. The skin appears very thin due to a poor supply of subcutaneous fat resulting in accentuation of the skin folds, the nails rarely cover the fleshy tips of the fingers and toes, and the shoulder girth is greater than the head circumference. The premature baby lies relaxed, passive and cries little and feebly.

The important factors for successful rearing of premature infants are:

1. Maintenance of body temperature and humidity.
2. Proper and adequate feeding.
3. Protection against infection.
4. Intelligent nursing and medical care.

Maintenance of body temperature is of paramount importance since the thermal mechanism of the child is unstable and the tendency is toward hypothermia. Not uncommon is it to see rectal temperatures as low as 96° or 97°F. or less.

Expensive incubators, of course, cannot be had in caring for the baby in the average home but means can be supplied or improvised under which the baby will thrive. An incubator which is in common use and can be easily transported can be made of well seasoned wood at a cost of not more than three to five dollars. It is constructed in a box like fashion with the base of the box 23½ x 14½ inches, and tapering symmetrically upward 14 inches with measurements at the top of 19½ x 11½ inches.

It has a false bottom and an arc-like opening cut out of one end sufficient to permit the child's head and neck to remain outside the box. Heat is supplied within the incubator by means of a 40 watt electric bulb, or hot water bottles; or bricks, etc. A glass window is inserted on top and a sliding door on the side for ventilation. A thermometer should be placed beneath the window on the inside in plain view from above. Proper

humidity can be maintained by means of damp cloths or sponges within the incubator. In the absence of an incubator a clothes basket fully draped inside, with hot water beneath the bedding carefully shielded from the infant, is the simplest arrangement.

No clothing is necessary. The infant, carefully anointed with mineral oil except in the region of the sterile cord dressing, is swathed in sterile cotton and placed in the basket or improvised incubator with a small pad of gauze covered cotton beneath the buttocks to recover urine and meconium. Oil the infant on alternate days, dependent upon its progress which is indicated by stabilization of temperature, activity, and nutritional improvement. The treatment must be individualized in all respects.

J. J. R.

(To be continued)

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## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### MALARIA CONTROL ACTIVITIES FOR 1937

The activities directed at malaria control may be divided into four parts, namely, (1) definition and study of the problem; (2) drainage; (3) impounded water; and (4) miscellaneous.

Through a cooperative budget between the Tennessee Valley Authority and the State Department of Health, funds have been made available for the employment of six malaria control engineers to be assigned to eight of the Tennessee Valley counties (Colbert, Jackson, Lauderdale, Lawrence, Limestone, Madison, Marshall, and Morgan). These engineers were detailed to the above named counties on October 11.

Their first tasks will consist largely of locating endemic foci, an engineering study of the area in order to better define the malaria problem, and a general malaria educational program. It is felt that through such efforts the public will be apprised of the existing malaria problems, and that with proper guidance and leadership a program for a county-wide malaria control program, utilizing all of the proper effective malaria control weapons, may be inaugurated on a long term and planned basis.

In one county the board of health became interested in the malaria problem, as there had been many cases reported during 1936. Upon request from the board for guidance, a paper entitled "A Study and Analysis of Malaria and Mosquito Breeding in the County and the Largest City, with Recommendations for Control Thereof" was prepared by the central office and submitted to the officials of the city and county at a joint meeting.

The plans and recommendations were given consideration, which led to the county's appropriating funds for purchasing drugs for prophylaxis and treatment. The recommendation that an engineering study be made received favorable consideration, and hopes are held that this will later be done.

Upon request from the health officer of another county a report entitled "A Preliminary Study and Analysis of Malaria in the County, with Recommendations for the Control Thereof," similar to the one made for the other county, was prepared. Funds have been allocated to begin the engineering study and will be inaugurated upon completion of the training of the engineer selected.

A bill was passed by the Legislature and signed by the Governor providing for a vote on a constitutional amendment to permit the people of a third county to express themselves on being taxed to provide funds for malaria control work. The title of the bill is as follows:

> "An Act to provide for and submit to the qualified electors of the State of Alabama, at the General Election in May, 1938, an amendment to the constitution of Alabama authorizing Limestone County to levy and collect a tax of one mill for use in malaria control work, in addition to all taxes now authorized."

This is a pioneer step for combating the malaria problem on an organized basis, a basis now considered essential where the problem is extensive.

When the public realizes that malaria is a problem that can be solved and they see fit to levy a special tax for that purpose, a forward step in the control of one of man's greatest scourges will have been made.

Where practicable, drainage is recognized as the basic first approach for the elimination of malaria transmission. Ditches and canals must be properly maintained if max-

imum results are to be obtained. Drainage for malaria and mosquito control was continued through the cooperation of the Works Progress Administration and the U. S. Public Health Service as inaugurated during the summer of 1935 and carried out during the 1936 calendar year. This was under an approved state-wide malaria control project by drainage and also under local county projects—with labor, local supervision, materials, equipment, and transportation being furnished by the WPA and the technical direction given by the State Department of Health.

The state-wide project was released for operation in individual counties as labor for it became available. On October 31, 1937, this project was being operated in six counties with 247 men employed.

One county-wide project for malaria and mosquito control is in operation with an average of 533 men employed. Even though the purpose of this project is two-fold, the majority of the work has been confined to malaria control.

With the development of hydroelectric projects and the creation of lakes for pleasure and recreational purposes, malaria control on impounded waters continues to require special effort.

There are about 240 ponds known to have been impounded since 1927, the date the regulations governing the impounding of waters were promulgated and adopted legally by the State Board of Health. The impounding of water in an area of 1/10th acre or more and the raising of the water level on existing pounds and lakes are subject to the requirements of the regulations, provided any portion of the body of water is within one mile of human habitation other than that of the owner. These regulations were not adopted to restrict development of the natural resources of the state but to protect the people against the formation of endemic malaria areas and prevent increase in malaria transmission.

The nineteen major impounded water projects (lakes that have an area greater than 100 acres) have a total area of approximately 163,343 acres, and about 65,000 people live within one mile of them. The 221 minor lakes have a total area of approximately 1,535 acres, and about 54,000 people live within one mile of them. There are 67 additional projects in various stages of development.

Representatives of the State Department of Health in 1937 made 49 inspections of the major projects and 80 inspections of the smaller projects. The county personnel made 109 inspections of the smaller projects.

One medical man and nine engineers attended a training course in malaria control sponsored by the U. S. Public Health Service. The engineers spent four weeks in Savannah, Georgia, with Dr. T. H. D. Griffitts, two weeks at Tallahassee, Florida, with Dr. Mark F. Boyd, and two weeks with the Health and Sanitation Section of the Tennessee Valley Authority. The doctor spent four weeks at each of the above three stations.

The State Department of Health, the county health units in the Tennessee Valley, and the Health and Sanitation Section of the Tennessee Valley Authority have and are fully cooperating on the malaria problem in the Tennessee Basin in Alabama. The sanitation officers of four counties inspected 73 adult mosquito catching stations in the Pickwick and Guntersville reservoir areas every fourteen days during the period from May 17 to October 19. The catching stations are located in and near the areas to be flooded by the Pickwick and Guntersville Dams. These inspections indicate in general the amount of mosquito breeding from existing ponded areas. A portion of the Pickwick project is located in Tennessee and Mississippi, and a small part of the Guntersville area is in Tennessee.

A representative of the State Department of Health was appointed a member of the committee for the study of problems pertaining to the Altamaha-Mobile Drainage Basin. This committee is an integral part of the National Resources Committee. Plans were formulated and submitted at a meeting of the Committee held in Atlanta on October 18, 1937, for a long term study project of the malaria problem in the endemic areas of the basin.

Malaria workers are entering upon a new era in the control of this disease. The economic condition of the masses is improving; people are showing more interest in the control measures and are realizing that if they are to cope with the malaria

problem, it should be handled on an organized and scientific basis. The malaria workers' part in this new trend of malaria control work is to make a preliminary analysis of the problem and submit it to the public. If the area under consideration requires a special engineering study and analysis, the local governing bodies should make funds available for the same. In the course of the engineering study an educational program would be carried on and the public informed from time to time of the existing conditions. With the completion of the study and preparation of the estimates and plans for the control work having been made, we, as malaria control workers, will have placed the responsibility of control work where it logically rests, namely, on the governing bodies. The people, if they so desire, can control the disease if they elect to put it on a unified basis, as they have already done the public school system and the public highway system.

J. C. C.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 Sept. | Oct. | Estimated Expectancy Oct. |
|---|---|---|---|
| Typhoid | 47 | 25 | 66 |
| Typhus | 76 | 67 | 48 |
| Malaria | 839 | 700 | 984 |
| Smallpox | 2 | 9 | 1 |
| Measles | 9 | 11 | 29 |
| Scarlet fever | 63 | 88 | 192 |
| Whooping cough | 95 | 66 | 56 |
| Diphtheria | 116 | 183 | 300 |
| Influenza | 28 | 138 | 76 |
| Mumps | 30 | 33 | 14 |
| Poliomyelitis | 15 | 9 | 6 |
| Encephalitis | 2 | 2 | 1 |
| Chickenpox | 4 | 35 | 7 |
| Tetanus | 4 | 6 | 7 |
| Tuberculosis | 222 | 270 | 297 |
| Pellagra | 15 | 16 | 28 |
| Meningitis | 7 | 8 | 3 |
| Pneumonia | 76 | 91 | 75 |
| Syphilis | 1533 | 1919 | 192 |
| Chancroid | 13 | 16 | 7 |
| Gonorrhea | 425 | 433 | 178 |
| Ophthalmia neonatorum | 0 | 1 | 1 |
| Trachoma | 0 | 0 | 1 |
| Tularemia | 2 | 0 | 0 |
| Undulant fever | 3 | 6 | 3 |
| Dengue | 0 | 0 | 0 |
| Amebic dysentery | 1 | 3 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 75 | 48 | |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years. With the venereal diseases, clinic cases were not included prior to 1936.

# *Book Abstracts and Reviews*

**Clinical Laboratory Diagnosis.** By Samuel A. Levinson, M. S., M. D., Director of Laboratories, Research and Educational Hospitals, Chicago, Ill. Associate Professor of Pathology and Bacteriology and Assistant Professor of Medicine, University of Illinois, College of Medicine; and Robert P. MacFate, Ch. E., M. S., Assistant Director of Laboratories, Research and Educational Laboratories, Chicago, Ill. Associate in Pathology and Bacteriology and Instructor of Physiological Chemistry, University of Illinois, College of Medicine. Lea and Febiger, publishers. Philadelphia, Pa. 1937. Cloth. 877 pages. Price $9.50 net.

This comprehensive text-book, written for the student, intern, practising physician and technician, has been compiled by the authors from an outline which has been distributed for several years to the students in clinical pathology at the University of Illinois, College of Medicine. For the student this text provides the fundamentals presented in such a manner as to give a review of the pertinent points of earlier studies correlating the subjects with clinical diagnosis. The technique for obtaining and examining various materials is unusually clear yet concise. Pathological findings are compared with the normal and the clinical symptomatology and pathology usually found in patients are presented with these abnormal findings. A brief review of anatomy, physiology, biochemistry and other previous studies are included to aid the student in correlating the normal and abnormal findings. For the intern and practising physician the book is a valuable aid to the study of those cases requiring laboratory methods. For the technician the preferred technique is given and other well known procedures discussed.

The table of contents includes chapters on the mouth, stomach, duodenum and liver, intestines, metabolism, chemical analysis of the blood, kidneys, chemical analysis of the urine, hematology, immunology and serology, cerebrospinal fluid, general bacteriology, skin tests and other biological examinations and histological technique. In addition, this text has included chapters, not usually found in similar works, on pediatric procedures contributed by Dr. H. G. Poncher of the University of Illinois, and legal medicine and toxicology with the technique for the toxicological examinations of materials formulated by Dr. C. W. Muehlberger, Coroner's Toxicologist, Cook County, Illinois. The appendix outlining the lectures and laboratory procedures given in the course in clinical pathology at the University of Illinois includes preparations of normal solutions, sterilization, atomic weights and other much used information. Outline form is used where suitable and the text is adequately illustrated with 144 engravings and 13 plates.

F. M. F.

**Twenty-Five Years of Health Progress,** by Louis I. Dublin, Ph. D., and Alfred J. Lotka, D. Sc., with the collaboration of the staff of the Statistical Bureau of the Metropolitan Life Insurance Company. Published by the Metropolitan Life Insurance Company, New York. 611 pages.

Between 1911 and 1935, inclusive, the people of the United States experienced a World War, the most devastating influenza epidemic of modern times, and one of the worst depressions of any time. In spite of these, and any number of less powerful influences that have tended to make human life more uncertain and bring death sooner, the life span of the average American was lengthened by

several years during that time. The average duration of life for a certain group of Americans—the industrial policyholders of the Metropolitan Life Insurance Company—was extended during that quarter of a century by 14 years, or approximately 30 per cent.

The story of the successful effort to add to the average person's span of life through the progress of medical science has been told many times in heavy volumes and in magazine and newspaper articles. However, it probably never has been told as comprehensively and in such complete statistical detail as a part of it is told in this book by the third vice-president and statistician of the Metropolitan Life Insurance Company and his assistant, who have received valuable aid in their labors from the members of the staff of that company's statistical bureau.

"Twenty-Five Years of Health Progress" is not, let it be emphasized, a record of health-building and life-lengthening as enjoyed by the American people as a whole. Although here and there it shows the changing mortality figures for the entire population of the United States, the work is devoted in the main—one is tempted to say all but exclusively—to such changes as have come about in the vital statistics records of the industrial policyholders of the large insurance firm which published this book. All but a very few of its extensive and detailed tables are based upon the records of those policyholders exclusively. This means that, while they undoubtedly represent a true picture of mortality changes among that group, they should not be regarded as reflecting with complete accuracy the changes that have taken place in the general population.

Nevertheless, the trends in health and mortality shown by this selected group cannot fail to reflect changes that have come about in the population as a whole. Anyone reading its pages obtains an eagle's-eye view of two and one-half decades of notable advancement in the field of health and life-saving.

There is, for instance, a table listing the ten leading causes of death among the publishing firm's industrial policyholders in 1911. Directly underneath is a table showing the ten leading causes of death among this group in 1935. These two lists emphasize the progress that has been made in the curbing of certain diseases, mainly of an infectious or contagious nature. They also emphasize the seriousness of the so-called degenerative diseases at the present time.

In 1911, the first of these tables shows, tuberculosis (all forms) stood at the top of the list and was responsible for 18.5 per cent of all the deaths that occurred during that year among that particular group. Then came, in order, diseases of the heart, influenza and pneumonia (which are bracketed together as a result of changes in the rules governing classification of deaths, although this grouping is an unnatural one), chronic nephritis, accidents (all forms), cerebral hemorrhage and paralysis without specified cause, cancer (all forms), diphtheria, diarrhea and enteritis, and typhoid fever. These ten leaders in the list of 1911 killers were responsible for 71.2 per cent of all the deaths studied by these authors.

In 1935 diseases of the heart topped the list, being responsible for exactly the same percentage of the total deaths as tuberculosis a quarter of a century earlier. Cancer occupied second place, as compared with seventh place in 1911. Influenza and pneumonia were in third place, the same as in 1911, while chronic nephritis held to fourth place. Tuberculosis ranked fifth, being responsible for only 7.0 per cent of all the 1935 deaths studied, as compared with 18.5 per cent in 1911, when, as already pointed out, it ranked at the top of the list. Then followed, in order, cerebral hemorrhage and paralysis without specified cause, accidents (all forms), diseases of the coronary arteries and angina pectoris, diabetes mellitus, and appendicitis. These ten causes of death were responsible for 75.3 per cent of all the 1935 deaths studied, or 4.1 per cent more than those occurring in 1911.

The book does not confine itself by any means to general mortality. Indeed this is only a small part of the reading matter and tables that are to be found in its 611 pages. Detailed statistics are given as well on the various causes of death. In fact hardly a single serious illness fails to rate a chapter of its own, and there are also chapters on such factors in the death rates as suicide, homicide, automobile accidents, drowning, food poisoning, etc.

The authors have provided an excellent index, enabling the owner of the book to find immediately any information it contains. The work thus becomes of great value, not only for general reading but also for future reference.

J. M. G.

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**Length of Life**, by Louis I. Dublin, Ph. D., and Alfred J. Lotka, D. Sc., New York: Ronald Press Co., 1936, 400 pp. Price $5.00.

This book deals with the subject of life expectancy and related subjects the physician can understand. Most writings on this subject are highly technical and require a considerable foundation in mathematics.

It is divided into fourteen chapters and contains a valuable appendix showing life tables computed at different periods and for many foreign countries, as well as the United States and individual states.

Of interest is the discussion relating to longevity of famous poets, musicians, mathematicians, etc.; also that of presidents of the United States. This is followed by a short explanation of the meaning of a life table; survivors' deaths, mortality rates and life expectation.

Longevity in ancient times, including that in the Roman provinces, is compared with the most recent figures on the United States. Of special interest is the very low life expectation in ancient times in the younger age groups. The expectation among white males 2,000 years ago was approximately the same at 70 years as at the present time in this country. Expectations of life based on early life table computations are given, including Halley's Life Table for the City of Breslau in Silesia, covering the period 1687-1691. A brief discussion of English and American life tables follows.

The third chapter is devoted to the gain in expectation of life in the United States in recent years. In the last thirty years there has been a gain in the average length of life of thirteen years

for each of the two sexes. According to early computations (1850) the gain for males has been, in the past eighty years, twenty-one years for males and twenty-two years for females. The increase in life expectation has been much greater than anyone could have forseen and credit for it must go largely to the modern organization of public health service.

The expectation of life in Alabama, based on the three year period (1929-1931) for white males, was 59.37 years—white females, 61.88 years. In the entire United States, corresponding figures were 59.31 and 62.83 years, respectively. Alabama ranks 23rd among the states in length of life expectation for white males—36th for white females.

A comparison of the length of life which may be expected at birth in urban and rural areas shows it to be about four years longer in the latter for both white males and females.

The basis of the life table is the death rate. Biological aspects of the life table are considered, including a discussion of the relationship of death rates from specific causes. Every cause of death which can be eliminated partially or in total adds a certain amount of time to the average length of life. In the decade between 1920 and 1930, almost an entire year was added to the life span from a successful battle against tuberculosis. Efforts to reduce the number of deaths from the degenerative disease groups have met with little success. This is referred to as "an honorable defeat," because we cannot prevent our physical frame from wearing out.

It has been observed that in certain families longevity is greater than in others. The subject of inheritance and longevity is briefly discussed. Although the comparative effect of environment and heredity cannot be stated with accuracy, the increase in longevity attainable by the effective use of existing resources in the control of the environment still exceeds by a good margin the difference in longevity between the most favorable and least favorable heredity groups.

The contribution of medical and sanitary science to human longevity follows, including Pasteur's work, progress made in the control of insect-borne diseases, glandular and nutritional deficiencies, diseases of infancy and childhood and later life. It is not unreasonable to assume that life expectation will be still further extended by the contribution of medical and sanitary science to a hypothetical figure of approximately seventy years, which is an extension of ten years beyond the present figure.

Physical condition and impairments, such as over or underweight, heart, albuminuria, tuberculosis, asthma, etc., have an effect upon longevity; occupation does also. Clergymen and teachers have a comparatively low mortality. Physicians have a slightly higher life expectation at the age of thirty than white males in the general population, but a little higher death rate than does the professional class as a whole. This is ascribed to the vicissitudes encountered in practice, including exposure to the contraction of disease. Mortality among nurses, on the other hand, is very favorable, probably due to the fact that they are younger and safeguards are provided in the larger hospitals. Industrial workers are especially exposed to occupational hazards, such as accidents from machinery. Coal miners have a mortality of twice the general average. The accident death rate for airplane pilots on scheduled flights is six times the rate from all causes of men about the same age as pilots. Those who labor in iron and steel mills are particularly subject to respiratory diseases, the death rate from pneumonia being extremely high.

A chapter follows on the application of life tables to population growth and the true rate of natural increase. The latter for 1920 was 5.4 per 1,000—2.8 in 1930 and minus .59 in 1934. Mortality, in 1934, overbalanced fertility. An exceedingly high birth rate in the Southern States is responsible for the high rate of natural increase in population in that part of the United States. Many of the states in the northern and northeastern sections of the country have a negative figure. Population estimates indicate that we shall reach a maximum of 154 million in 1990, after which it will bebegin to decline. The aging of our population will have a definite effect upon our economic life.

Chapter 12 concerns the application of life tables to economic problems, life insurance—Chapter 13, different types of life tables, and Chapter 14, their construction.

The book will prove interesting reading to all persons engaged either in the field of medicine or public health and a valuable reference on life expectancy.

L. V. P.

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**A Textbook of Medicine:** By American Authors. Edited by Russell L. Cecil, A. B., M. D., Sc. D., Professor of Clinical Medicine, Cornell University Medical College; Associate Attending Physician, New York Hospital, New York City; Associate Editor for Diseases of the Nervous System; and Foster Kennedy, M. D., F. R. S. E., Professor of Neurology, Cornell University Medical College; Director, Department of Neurology, Bellevue Hospital, New York City. Fourth Edition, Revised and Entirely Reset. 1,614 pages with 42 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $9.00 net.

The practice of medicine has become so complicated that it is hardly possible for any one person to write with authority on every phase of medicine. "Systems" made up of articles written by many individual authors usually lack coordination. Some subjects are overlooked, some overstressed, others described much too briefly. Cecil's Textbook of Medicine possesses all the advantages of the system at its best and the volume written by a single author. The list of contributors is impressive, including Walter Alvarez, Donald C. Balfour, George Blumer, Lawrason Brown, A. R. Dochez, George Draper, Eugene F. DuBois, Carey Eggleston, Victor Heiser, Dean Lewis, Warfield Longcope, James S. McLester, George Minot, James E. Paullin, Francis Rackemann, Martin Rehfuss, Thomas M. Rivers, Douglas Symmers, Soma Weiss, Allen O. Whipple and Paul D. White. Important diseases are stressed and given more space than interesting and unusual diseases. Rare conditions, however, are not omitted and the contents are sufficiently inclusive to make the book an excellent reference volume.

The fourth edition includes completely rewritten chapters on epidemic encephalitis, hydrophobia, diphtheria, typhoid, undulant fever, pellagra, scurvy, rickets, nephritis and pernicious anemia. The following new topics are included: lymphogranuloma inguinale, new virus diseases, pneu-

monia in childhood, staphylococcus infections, meningococcus, sepsis, spontaneous hypoglycemia, the nephroses, classification of diseases of the heart, and diseases of the peripheral vessels.

So complete, so authoritative, so well illustrated, Cecil has the right to be termed "Osler's" only rival.

C. K. W.

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The Cerebrospinal Fluid. By H. Houston Merritt, M. D., Assistant Professor of Neurology, Harvard Medical School; Director of the Cerebrospinal Fluid Laboratory, Boston City Hospital; and Frank Fremont-Smith, M. D., formerly Assistant Professor of Neuropathology, Harvard Medical School; formerly Director of the Cerebrospinal Fluid Laboratory, Boston City Hospital. With a foreword by James B. Ayer, M. D. 333 pages with 17 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $5.00 net.

This volume on the cerebrospinal fluid is based on an analysis of 21,000 fluids examined in the Cerebrospinal Laboratory of the Neurological Unit of the Boston City Hospital and 1,000 cases selected from Doctor James B. Ayer's Laboratory at the Massachusetts General Hospital. The analysis of these cases and of the literature on the subject makes possible an evaluation of the diagnostic significance of the complete examination of the spinal fluid, including, in addition to cell counts, Wassermanns and colloidal golds, the chemical examination of the fluid.

The chemical findings in the spinal fluid under conditions of health are first presented, and then the variations from these normals in such diseases as meningitis, early syphilis, tabes, dementia paralytica, brain and cord tumors, brain abscess, multiple sclerosis, epilepsy, psychosis and such general diseases as hyperthyroidism, diabetes and hypertension. In the presentation of findings in these diseases, the authors' studies and those of other investigators are coordinated. The indications for lumbar puncture are presented and the detailed description of the various laboratory procedures are given. These include cell counts, crude and quantitative protein tests, quantitative sugars, chlorides and colloidal golds. An exhaustive bibliography is included.

Unlike most medical books these authors have presented not a compilation of facts and theories but rather a very extensive and time consuming investigation extending over a period of ten years.

This volume will certainly prove a classic in the opinion of neurological investigators, a practical volume for clinical pathologists and a reference work for internists.

C. K. W.

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The Management of Fractures, Dislocations and Sprains. By John Albert Key, B. S., M. D., St. Louis, Mo. Clinical Professor of Orthopedic Surgery, Washington University School of Medicine; Associate Surgeon, Barnes, Children's and Jewish Hospitals; and H. Earle Conwell, M. D., F. A. C. S., Birmingham, Alabama. Consulting Orthopedic Surgeon to the Tennessee Coal, Iron and Railroad Company and the Orthopedic and Traumatic Services of the Employees' Hospital; Associate Orthopedic Surgeon to the American Cast Iron Pipe Company; Attending Orthopedic Surgeon to the Crippled Children's Hospital, St. Vincent's Hospital, South Highlands Hospital, Hillman Hospital and Children's, Birmingham, Alabama. Member of the Fracture Committee of the American College of Surgeons, American Academy of Orthopedic Surgeons and the Advisory Fracture Committee of the American Medical Association. The C. V. Mosby Company, St. Louis, Mo., Publishers. Second edition. 1,246 pages. Illustrated. Price $12.50.

The book consists of a most comprehensive discussion of fractures, sprains and dislocations in both a general and a specific manner. The physiology of bone repair is covered in a very brief summary. Several chapters deal with the technic of making plaster bandages and a general discussion of some of the equipment used in fracture work. General principles are discussed in a helpful manner. Compound fractures are discussed as a group in a separate chapter. Several chapters on workman's compensation laws relating to fractures and medicolegal aspects of fractures are included and form a very important part of the book, particularly as both these subjects are a matter of concern for practically everyone practicing medicine. The subject of fractures of the skull with brain trauma has been covered in a most complete manner by Doctor Charles Edward Dowman and revised by Doctor Edgar F. Fincher of Atlanta. The chapter on fractures of the jaws and related bones of the face was written and revised by Doctor James Barrett Brown of St. Louis; this chapter is an important division of the book. The remaining portion of the work consists of specific types of injury and is thoroughly up to date in all respects. All of the recent advancements seem to be included and are treated in rather a detailed fashion. The section on fractures in the region of the hip has been largely revised and the recent advances in regard to different types of fixation are included. Skeletal traction is discussed as related to fracture-treatment in general and to specific types of injury.

The book is profusely illustrated and contains a large number of x-ray pictures with interpretative remarks. Also operative procedures are well illustrated by drawings and actual photographs. Both authors draw freely on their own experience and the experience of others.

The keynote of the entire book is good functional result rather than anatomic perfection and for that reason forms a very practical treatise on the subjects mentioned.

J. B.

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Methods of Treatment. By Logan Clendening, M. D., Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, University of Kansas Hospital; Consulting Physician, Kansas City General Hospital; Physician to St. Luke's Hospital, Kansas City, Missouri. With Chapters on Special Subjects by H. C. Anderson, M. D., Ursulla Brenner, R. N.; J. B. Cowherd, M. D., Paul Gimpel, M. D., H. P. Kuhn, M. D., Carl O. Richter, M. D.; F. C. Neff, M. D., E. H. Skinner, M. D., E. R. De Weise, M. D., and O. R. Withers, M. D. The C. V. Mosby Company, publishers, St. Louis. Sixth edition. 879 pages 1937. Cloth, $10.00.

Clendening's "Methods of Treatment" has been revised to conform with the 11th edition of the U. S. Pharmacopoeia. If any one characteristic has been responsible for the success of the previous five editions, it is the colorful manner of presentation. In the first part of the book, the author outlines his therapeutic armamentarium: drugs, vaccines and sera, glandular extracts, diet, hydrotherapy, exercise, massage, electrotherapy, radiotherapy, and psychotherapy. The pharmacology of each drug, its various preparations and dosage can be presented only in a matter of fact way, but when the author in the second part discusses the diseases of various systems of the body and the methods of treating them, he allows himself the freedom of interjecting between his lines a good bit of his own personality. He quotes a little from

other authors but for the most part his pages reflect his own experience. As he puts it, he has allowed himself "the luxury of some philosophic comment." Whether or not one agrees with his comments, one will find them interesting. The reviewer gets the impression that the author is more of an original thinker and investigator than a student of the work of others.

New material in the sixth edition includes protamine zinc insulin, scarlet fever streptococcus serum, staphylococcus toxoid, pertussis vaccine, mandelic acid and sulfanilamide.

All of the chapters in this book are put together with skill; all the sentences worded with colorful expressions. Exclamations are used as often as periods. What Clendening says seems exciting because of the way in which he says it. This book covers a field similar to that covered by Beckman's book on treatment but differs considerably from the latter. Beckman quotes freely from those authors whose views seems to him to be authoritative. Clendening tells you what Clendening thinks is so, and he is likely to impress you with the correctness of his viewpoint.

C. K. W.

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**Synopsis of Genito-Urinary Diseases.** By Austin I. Dodson, M. D., F. A. C. S., Richmond, Virginia. Professor of Genito-Urinary Surgery, Medical College of Virginia; Genito-Urinary Surgeon to the Hospital Division, Medical College of Virginia; Genito-Urinary Surgeon to Crippled Children's Hospital; Urologist to St. Elizabeth's Hospital; Urologist to St. Luke's Hospital and McGuire Clinic. Second edition. The C. V. Mosby Company, St. Louis, Mo. 1937. 294 pages. Price $3.00.

The first edition of this little volume was published in 1934. Intended as a synopsis for medical students and a handy reference for practicing physicians, it was necessarily brief. Descriptions of operative technique were omitted. Treatment by medical measures or by office manipulative procedures was described in some detail. In the revision for this edition, sections were added on the subject of diet in the treatment of urinary infections and diet in the control of calculus formation. Details of the ketogenic and acid-ash diets were included as were discussions of neurogenic disturbances of the urinary bladder and disturbances of the male sexual function.

C. K. W.

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**Manual of Clinical and Laboratory Technic.** By Hiram B. Weiss, A. B., M. D., F. A. C. P., Associate Professor of Medicine, College of Medicine, University of Cincinnati, Cincinnati, Ohio; and Raphael Isaacs, A. M., M. D., F. A. C. P., Associate Professor of Medicine, Assistant Director of the Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor, Mich. Fifth edition, reset. 141 pages. Philadelphia and London. W. B. Saunders Company, 1937. Cloth. $1.50 net.

This volume is a little manual of 128 pages of text intended to serve as a guide for the study of cases by students, internes and practicing physicians. It includes outlines for history taking and physical examinations, height-weight tables, brief descriptions of the practical laboratory procedures for examination of blood, urine, stool and sputum, methods of vaccination and immunization and tables of food values. The technique of performing the usual routine tests is given and references to the literature will guide the reader to the descriptions of other less important or more complicated procedures.

The new fifth edition includes the following new material: Addis counts on the urine in nephritis, estimation of vitamin C in urine, determination of blood volume, the Neufeld method of typing pneumococci, heterophile antibody in the diagnosis of infectious mononucleosis, albumin-globulin ratios in the blood and diagnostic tests for undulant fever.

C. K. W.

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**Crippled Children: Their Treatment and Orthopedic Nursing.** By Earl D. McBride, B. S., M. D., F. A. C. S., Assistant Professor of Orthopedic Surgery, University of Oklahoma, School of Medicine; Attending Orthopedic Surgeon to St. Anthony Hospital; Associate Orthopedic Surgeon to Oklahoma City General and Wesley Hospitals; Visiting Surgeon to W. J. Bryan School for Crippled Children; Chief of Staff to Reconstruction Hospital, Oklahoma City, Okla.; Member of American Academy of Orthopedic Surgeons; in collaboration with Winifred R. Sink, A. B., R. N., Educational Director, Grace Hospital School of Nursing, Detroit, Mich.; formerly Head Nurse of James Whitcomb Riley Hospital of the Indiana University Group; Instructor of Nurses, Indiana University School of Nursing; Educational Director, General Hospital, Mansfield, Ohio. The C. V. Mosby Company, St. Louis, 1937. Second edition. 379 pages. Price $3.50.

The authors have succeeded in assimilating a great deal of material in a relatively small book which can be read through completely in a short space of time or used as a reference book. It seems evident that Miss Winifred R. Sink has had a distinct part in the authorship of the book because of the detailed description in regard to nursing care; many points are considered which would occur only to a nurse who has had the responsibility of caring for patients and instructing other nurses. It is a book distinctly written from a nurse's point of view. The need of special training for nurses engaged in orthopedic work is stressed.

The portion of the text relative to operating room and plaster room technic is written in great detail and should be a distinct help in preparing a nurse so that she may give adequate assistance to the orthopedic surgeon. The portion of the book concerned with special disease entities covers the nature of the disease and symptoms in sufficient detail to give the nurse a working knowledge of the condition present so that the general aim of treatment might be understood. The detailed treatment under the separate disease entities is excellent and is of sufficient length to really serve a distinct purpose.

The book seems thoroughly up to date, including recent advances in fracture surgery, particularly Kirschner wire and the different means of internal fixation in fractures of the hip. The illustrations are excellent but additional illustrations in the chapter on bandaging would be a helpful addition.

The chapter on braces is the best that I am familiar with. The importance of proper care of mechanical braces and instruments is stressed.

The book is well worth the time of any surgeon to read it and it is a very valuable one for nurses or for anyone teaching nurses.

J. L. B.

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# *Truth About Medicines*

## NEW AND NONOFFICIAL REMEDIES

Sulfanilamide.—The following revision of the published description (The Journal A. M. A., July 31, 1937, p. 358), extending the allowable claims has been adopted: Sul-

fanilamide has been used primarily in infections due to beta-hemolytic streptococci, especially in the treatment of puerperal fever, erysipelas, hemolytic streptococcus septicemia, streptococcic sore throat and surgical infections with hemolytic streptococcus. Present studies indicate that this drug is useful in the treatment of gonococcic infections. In some cases the results have been most striking, while in others the drug has not proved especially efficacious. It has also been used in the treatment of gonorrheal vulvovaginitis in young girls but recovery from the condition has not been permanent with this agent. The literature also indicated usefulness in meningococcic infections and possibly gas bacillus infections. The evidence is incomplete at the present time for further consideration of the possible usefulness of this drug in infections by Bacterium coli, Bacterium typhosum, and paratyphosum A and B, as well as all varieties of Brucella. There is some indication that it is useful in pneumonia due to type III pneumococci. Sodium bicarbonate may prove useful in combating the acidosis produced by the drug. Jaundice and urticaria have also been reported as undesirable side effects following the administration of this drug. Sulfhemoglobinemia and cyanosis have followed its uncontrolled use in certain instances. There is also a possibility that methemoglobinemia and granulocytopenia may follow such therapy and there have been reports of hemolytic anemia following administration of the drug. Until more is known sulfanilamide should not be prescribed concurrently with other drugs.

## PROPAGANDA FOR REFORM

Sulfanilamide—A Warning.—Seldom has any new drug introduced in medical practice aroused the enthusiasm that has developed for sulfanilamide. The Journal, the Council on Pharmacy and Chemistry and various individual practitioners have warned against indiscriminate use of sulfanilamide. In The Journal A. M. A., September 25, eleven contributions on sulfanilamide were published. Nine of these reported the occurrence of toxic manifestations, including dermatitis and photosensitization of the skin. Particularly serious are the possible dangers of granulocytopenia and sulfhemoglobinemia. The latter may sometimes go unrecognized without adequate methods of diagnosis. Sulfanilamide should not be administered in association with other drugs until definite information is available as to toxic effects. Thus far only the harmlessness of sodium bicarbonate in such association seems to have been established. Magnesium sulfate and some of the coal tar derivatives are conspicuously drugs which should not be administered concurrently. (J. A. M. A., Oct. 2, 1937, p. 1128)

Oral Vaccine in the "Cold" Season.—During the winter of 1936-1937 Eli Lilly & Co. strenuously advocated the treatment of colds with an oral vaccine, Entoral. Since colds are generally self limiting, scientific evidence on the value of any preparation is hard to obtain. The Council on Pharmacy and Chemistry considered Entoral and declared it unacceptable for inclusion in New and Non-Official Remedies because the hypothesis on which the product is based is inadequately supported by experimental evidence and the reports of its use contained in the literature are insufficiently documented. Now the William S. Merrell Company has been circularizing the profession with claims broader and more bombastic than those made for Entoral. Its product is Catarrhal Oravax-Merrell, described as catarrhal vaccine in enteric coated tablet form. The firm claims that "by the use of Catarrhal Oravax it is now possible to immunize large industrial groups against common cold at extremely low cost." Has any competent industrial surgeon actually established the usefulness of this preparation? Recent advertising mentions only experiments on Merrell's own employees! (J. A. M. A., Oct. 2, 1937, p. 1130)

Cobra Venom in Arthritis.—For a number of years various venoms, especially those of bees and snakes, have been used in the treatment of a variety of diseases. Of commercial preparations of different venoms, those of bees have been most widely used. No extensive scientific study has been made concerning the value of cobra (or bee) toxins in chronic arthritis. Many believe that such relief as arthritis patients may obtain from bee or snake venoms is probably derived from a reaction somewhat similar to that from foreign proteins (milk, typhoid vaccine). The value of snake venom as a superior coagulant is more definitely established. (J. A. M. A., Oct. 2, 1937, p. 1143)

# *Miscellany*

## ADVERTISERS' NOTES

"STONE WALLS DO NOT A PRISON MAKE
NOR IRON BARS A CAGE."

Winter is a jailer who shuts us all in from the fullest vitamin D value of sunlight. The baby becomes virtually a prisoner, in several senses: First of all, meteorologic observations prove that winter sunshine in most sections of the country averages 10 to 50 per cent less than summer sunshine. Secondly, the quality of the available sunshine is inferior due to the shorter distance of the sun from the earth altering the angle of the sun's rays. Again, the hour of the day has an important bearing: At 8:30 A. M. there is an average loss of over 31%, and at 3:30 P. M., over 21%.

Furthermore, at this season, the mother is likely to bundle her baby to keep it warm, shutting out the sun from the baby's skin; and in turning the carriage away from the wind, she may also turn the child's face away from the sun.

Moreover, as Dr. Alfred F. Hess has pointed out, "it has never been determined whether the skin of individuals varies in its content of ergosterol" (synthesized by the sun's rays into vitamin D) "or, again, whether this factor is equally distributed throughout the surface of the body."

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# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 7** · **Montgomery, Alabama** **January 1938**


## THE PATIENT AS A PERSONALITY


By
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There has been a decided trend during the past few years to lay more stress upon the emotional factor in disease. Articles and books dealing with the autonomic nervous system, with so-called functional disorders of the various organs, with attempted explanations of nervous symptoms, are all read by doctors of medicine with some possible profit and, no doubt, considerable bewilderment.

The general practitioner and the internist who deal with a functional disorder in every third or fourth patient; the pediatrician with his feeding problems in the youngster, frequently resting upon an emotional disturbance; the genito-urinary specialist and his cases of frigidity in the female and impotence in the male; the gynecologist who sees many nervous women complaining of various pelvic disorders; the otolaryngologist who cannot but be impressed with the mental factor in many of his chronic sufferers; the dermatologist, the surgeon, the orthopedist and the ophthalmologist all are confronted daily with problems which are recognized to be influenced and conditioned by the personality or the emotional background of the patient.

Because these things are not clearly understood, because we yet have so little factual information, and because there is so little correlation in this field, it may not be amiss to discuss more or less informally the human personality, with the idea in mind of orienting ourselves in this fascinating realm of study. Certainly the personality of every patient must be considered, either consciously or subconsciously, in the treatment of every disease.

Personality has been defined by Dr. Macfie Campbell as "the man in action as seen by others and as known to himself." But what determines personality? An individual may consider himself as honest, contented, capable and courageous, but, when introspectively he penetrates beneath the mask, which others observe, he may find shrinking timidity, feelings of inadequacy and insecurity, smoldering discontent and second rate methods of meeting the problems of life. To understand this man or any other man, we must go away back into his life, theoretically even before his life or that of his parents, and follow up one conditioning factor after another which has been brought to bear upon his development.

That heredity is important, no sound man will deny. Heredity gives us the clay of which we are made, environment molds it. One cannot make a silk purse out of a sow's ear, neither can one expect a pair of mated dullards often to present the world with a mathematical genius or an outstanding artist. Martin Kallikak and his wife were normal and their descendants for six generations were considered normal, but Martin Kallikak had an illegitimate child by a girl who was feeble-minded, and the descendants in this line for six generations in the same environment yielded 222 feeble-minded out of 41 matings. While our present-day interpretation of the Kallikak findings has become more liberal and less rigid, we cannot nevertheless disregard the implications of this study.

The hereditary influence of the great musician, Johann Sebastian Bach, was evident through several generations and a study of the families of Beethoven, Schubert and Liszt reveals similar findings.

Heredity, in my opinion, gives us latent capacity, driving force, potentialities for creative activity; environment stimulates or inhibits, conditions or modifies, balances or produces imbalance in the innate departments of our mental make-up.

There are many physical factors which

may possibly influence personality formation.

We are all familiar with the effects of climate. The hot sun of the tropics breeds lethargy and laziness, and, as a result, the white race, unaccustomed to such temperature and humidity, frequently loses its aggressiveness in a few generations and sinks to a level of demoralized indolence. The brisk cold climate of the north shows its imprint in the haste and vigor of those who inhabit these geographic regions.

Campbell cites that continued exposure to the high winds of Eastern Persia is very trying and Europeans find that it renders them irritable, deadens their initiative and makes them want to stay idly indoors; and the natives themselves are more inert than their fellow Persians who live further to the north and west.

The effects of lowered atmospheric pressure have been noted by both balloonists and mountain climbers. Lister Maw in 1827, while in the Andes, wrote: "The rarefication of the atmosphere tended greatly to elevate our spirits"; and likewise Ramond, while in the Pyrenees, commented: "It seemed to sustain my forces and excited my spirits. I am persuaded that we often owe it to that agility of the limbs, that finesse of the senses, that elan of thought which suddenly dissipates the weight of fatigue and the apprehension of danger."

Water plays an essential role in the functioning of any biologic organism. The agony of those who have been lost on deserts with throats on fire with the hot dryness and joints grating, as the heavy load of even dried out bodies bears down upon fatigued and leaden feet, is ample evidence of this influence, and especially when it is contrasted with the indescribable ecstacy and change of outlook brought by a cup of cool and sparkling water.

More important still are the changes wrought by the deprivation of essential food elements. A hungry man is an angry man, and an undernourished child is often petulant and a peevish child.

In a study of famine in Russia in 1922, Hassin found that the emaciated population showed extreme apathy, indifference to personal appearance and total resignation to fate. In the later stages of hunger he was struck with the almost total immobility of the sufferers.

The quality as well as the quantity of the food must be taken into account. For muscular activity an easily available supply of carbohydrates is important; for maintaining the heat level of the body, fats are essential; for normal growth and development, and the maintenance of well being, proteins, vitamins and minerals are needed.

A few lumps of sugar ingested by a nervous and exhausted athlete may spur him on to the completion of the last lap with consistent drive and composure.

The lack of the pellagra-preventing vitamin brings irritability, anxiety, distrust and depression. Our own Dr. J. S. McLester has brilliantly described a group of symptoms which he finds in those whose vitamin intake is inadequate. The nervousness, anxiety, easy fatigue, ill-defined aches and pains, and digestive disturbances of these cases have been made to disappear by utilizing a thoughtfully planned, adequate diet.

Recent years have brought forth a mass of information and misinformation on the influence that various glands in the body have on personality development. These glands are very important when considered wisely and conservatively, but they too are but one group of factors and not the "all in all" that is claimed for them.

Well known to the physician are the tremulous fingers, the widened eyes, the rapid pulse and the emotional instability of the unfortunate victim of an increased secretion of the thyroid gland which lies unobserved in the necks of normal people. Similarly, an under function of this gland may also result in obesity, apathy, mental sluggishness and depression.

Even body type has a relation to personality. Kretschmer, in exhaustive studies, found that the slender, delicate, asthenic, narrow, thin individuals were more often introverted, shy, timid and regressive; while the rounded, broad, large abdomened, thick and short necked individuals were more often disposed to have emotional disorders, but the manifold combinations of body types preclude an exact diagnosis of temperament on these findings alone.

Infections, fevers, exhaustions may bring about personality changes, noteworthy among which is sleeping sickness or encephalitis, which swept the world from 1918 to 1932. In the wake of this disorder

are left victims previously normal but now irritable, nervous, restless, mischievous, obstinate and maladjusted.

The habitual user of narcotic drugs, particularly opium, and the chronic imbiber of spirituous drinks change from characters who are lovable, trustworthy and industrious, to those who are irritable, indolent and careless of the welfare of their families.

I have mentioned all of these possible factors which may influence personality development to impress upon you the unwisdom of seeking simple unitary explanations for human conduct, and to prevent you from becoming too readily enthusiastic about any particular school or system of psychology. A system tends to isolate one. It forces one to defend its own particular point of view and prevents one's acceptance of and participation in the good works of other schools. It narrows one's perspective and stifles free thinking.

And now after a consideration of these many physical factors, we come to what is probably the most important part of personality formation; that is, the purely psychologic situations and influences.

Not ignoring any of these aforementioned elements, we must remember that personality is believed to be formed in infancy and childhood. Professor G. C. Ferrari took daily notes on the psychologic development of two of his children from birth until they were ten years old, notes which were read and studied by him only after the youngest had reached the age of twenty. He was able to demonstrate that from the second to the third years, all of the qualities of their intelligence and their character, which became their characteristics in adolescence and adulthood, were even then very well defined.

What then are some of these important psychologic factors which shape personality? Most important of all are parent-child relationships. From earliest life throughout development the mother and father are weaving an influence. Brothers, sisters, teachers, companions, relatives and others living in the home also contribute their share and all contribute in both obvious and unrecognized ways. A point to be remembered is the plasticity of childhood. This is, of course, limited somewhat by inborn disposition and temperament, but there is always plasticity. The child is easily and often indelibly impressed, and imitation is very active within him. The thinking of childhood is egocentric; that is, centered about himself. We might say for the child that the sun and the moon appear to follow him everywhere he goes and at first he thinks little of the sun's possible appearance to other persons. This egoism protrudes itself into many spheres of thought and action. It stimulates a desire for affection and approval, it bespeaks of self-assertion, it initiates a tendency towards self-display and a craving for personal prominence. Rivalry with others and jealousy depend largely upon it. With all of these egoistic manifestations, there is a persistent awareness, perhaps dim and not consciously recognized, of a lack of personal security. Mental growth is one long conflict, not necessarily painful, but still a conflict between the demands of natural egoism on the one hand and the demands and conditions of the environment on the other.

Over-protection is a most pernicious influence. It may be maternal or paternal or both. It manifests itself as in too much "mothering" of the child; in keeping him tied to his mother's apron strings. It results in uncalled for and mushy affection far above that which every normal parent naturally wishes to bestow upon the child. It has been shown by the mother sleeping with her son until he is in his teens, by her anxiously awaiting his return home after attendance at some innocent recreation and it often keeps him constantly in her sight. It over approves his slightest achievement and excuses his grossest transgression. It prevents the development of independence, it stays the normal emancipation of youth far beyond its natural period, and it frequently produces the milk-sop and the weakling. If at last a sort of man comes out of this setting, he is often spineless, dependent, critical, often loving himself and his mother too much to show natural affection for his wife, and often judging all women by the false standards of a doting but probably abnormal parent. If over-protection does not result in the namby-pamby type of individual, it may produce a frankly rebellious one.

Let us now look into the reasons for this over-protective attitude. It is often a reflection of abnormal situations and reactions in the life of the parents. The mother

whose own childhood and youth were unhappy, whose advantages were niggardly, who sought affection and found it not, who was unpopular and unattractive, who was frustrated in her own ambitions, may try to live her life again in the child's life. She may exploit the child in an unconscious desire to have the child fill the place she sought and did not attain, and in so doing she often does the very thing she is trying to avoid. She brings unhappiness and insecurity where she hoped to create joy and satisfaction.

The mother who has lost a child is more inclined to over-protect the one who is left or the one who comes later; and the woman who has anxiously and hopefully waited for the blessed event, only to be disappointed year after year, may lose her sense of balance in her great joy for the dear little one who arrives long after he had been despaired of. She must indeed be sensible not to lavish her affections unwisely upon him.

The mother of the little fellow who has always been frail and sickly, who has gone many times into the very jaws of death with illnesses of childhood, and who has emerged handicapped and possibly maimed, would be indeed cold and heartless not to offer this little chap every speck of protection that he needs to fight the battle of life. But in giving this protection she should be cautious not to make it too obvious, not to let it be embarrassing, not to produce in him a feeling of inferiority and not to thwart his emotional and mental development.

A woman failing to find in marriage the affection she expects and craves, forced by convention or circumstances to remain literally tied to one to whom she is indifferent or possibly loathes and finding no normal outlet for her pent-up emotions, may make the child a substitute lover, to its great detriment. Sometimes the mother of an unwanted child, subconsciously because of her guilt reactions, is over-affectionate and over-solicitous in an effort to compensate for her inward hatred for the child.

In concluding this summary for the causes for over-protection, I must add that in my experience it is indeed almost impossible to so conceal disharmony in the home so as not to have it leave its imprint upon the lives of the children.

Feelings of insecurity taking root early may change the course of one's whole life, may mean the difference between success and failure or between happiness and misery. It occurs as a complex or an emotional web of ideas ever protruding itself and modifying thought and conduct on every hand. Parental over-protection not infrequently causes it, but there are many other reasons for its development. Actual physical handicaps, such as paralyses, crossed eyes, ungainly figures, extremes in body type and speech defects, may render one self-conscious, conspicuous, different and, therefore, lead to feelings of inadequacy. The extremely bright child pushed ahead in school, and having as school mates larger children, may be unable to compete physically and socially and feel inferior. A child may be handicapped by poverty, may be kept too clean, dressed too primly, or conspicuously, and because of these things suffer and feel insecure. In the larger cities particularly, the children of foreign-born parents of old world ideals and customs feel out of place and different among people of new world values and conventions. Thus there are many situations to cause a child to feel isolated and unacceptable, to become unduly self-conscious and to have inferiority feelings, whether they be based upon imagination or actuality.

Plain enough is the unwisdom of over-indulgence, of lack of discipline, of spoiling the child, of allowing temper tantrums to gain the upper hand, of not providing normal emotional outlets, and of allowing phantasy life and day-dreaming to substitute for necessary wholesome play and contacts with reality. But these tendencies should not be ruthlessly and unthinkingly stamped out, but rather have their causes determined and removed and normal activities and adjustments provided. It is well to remember that the most rigid disciplinarians frequently produce the most stubborn children and to realize that all abnormal behavior reactions have a cause and, possibly, a purpose. Temper tantrums, imaginary bodily ailments or neurotic symptoms serve the double purpose of allowing the individual to avoid some duty and at the same time bask in the light of self-display.

Where then does all of this discussion lead us? It leads to this one concluding thought and plea:

While we thoroughly realize that we should never, in our philosophical indul-

gences, relax in our efforts to explore the patient in a truly painstaking and scientific manner, utilizing our God-given eyes, ears, hands and brains, and our laboratory and x-ray aids to the fullest; while we are entirely aware of the obvious benefits of a good medical history, let us not in these strivings forget that we are dealing with a personality, an individual, a "he" or "she" who has been conditioned by many factors—hereditary, constitutional, physical, environmental and emotional—and that a consideration of all these factors not only constitutes "good medicine" but that the application of such a concept will pay unexpected dividends in a better understanding of human pathology and a more successful therapy.

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## TREATMENT OF FRACTURES OF THE SURGICAL NECK AND SHAFT OF THE HUMERUS*

By
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Fractures of the humerus are divided conventionally into (1) fractures of the upper extremity, which includes those of the head, anatomical neck, the tuberosities and the surgical neck of the shaft, together with separation of the epiphysis; and (2) fractures of the lower extremity, such as supracondyloid, intracondyloid, of either condyle, and separation of the epiphysis. I have on purpose left out of consideration fractures of the lower extremity of the humerus, since their treatment falls in an entirely different category and furnishes subject matter enough for a complete treatise in itself. The fractures of the upper extremity of the humerus, other than those of the surgical neck, are rare and consequently we are seldom called on to treat them. The treatment of fractures of the surgical neck and shaft of the humerous is very similar in many respects, and in this discussion I wish to describe in detail an ambulatory dressing that I have used for several years in the treatment of both and found to be very satisfactory.

Fractures of the surgical neck make up a large percentage, possibly 95%, of the fractures of the upper extremity of the humerus and should include all fractures between the epiphyseal line and the insertion of the pectoralis and teres major muscles. They are caused by direct violence or a fall upon the elbow and it is surprising in some cases how so slight an injury can produce so much bone damage. I treated one case, a woman, with complete fracture and extreme dislocation of fragments caused by the shoulder being bumped against the door of an automobile by her husband sliding across the seat against her. The car, being driven by her husband, had skidded into a very shallow ditch off the wet pavement and did not even turn over. Yet this slight amount of violence produced a very severe fracture of the surgical neck of the humerus.

The upper end of the distal fragment usually points into the axilla and the outer end of the proximal fragment upward and outward. When abnormal mobility, crepitus, swelling and pain are present near the shoulder joint following an injury, a fracture should be suspected and immediately confirmed by x-ray examination. Do not attempt any manipulation until a roentgenogram has been made to determine, first, that a fracture exists and, second, the exact position of the bone fragments.

Some cases will require treatment with overhead traction, with the shoulder in extreme abduction, the attachment to the arm being with moleskin adhesive or a Kirchner wire through the lower end of the radius and the weights attached to a small rope which passes through an overhead pulley. A Thomas or a Murray-Jones humerus splint may or may not be used with this treatment. One advantage of traction without a splint is that the patient will be able to more freely use the muscles about the shoulder joint and have active use of the wrist and fingers, an extremely important part of the treatment while the arm is in overhead traction. At the end of two weeks there should be sufficient reduction and seating of the bone fragments to allow placing the arm in an ambulatory dressing, consisting of an internal triangular splint in the axilla with a molded plaster of Paris shoulder cap and splint extending to the wrist. The arm should be kept in this dressing from three to four more weeks, with active motion of the wrist and fingers being encouraged at all times. Then there should be sufficient bone union to leave off all dressings except,

*Read before the Northwestern Division of the Association, Russellville, September 16, 1937.

possibly, a forearm sling; and the problem of restoring the shoulder and elbow joints to normal motion should then have attention.

Personally, I think an attempt should be made to reduce all of these fractures and apply an ambulatory dressing and only those cases that cannot be successfully reduced and held in fair position should be treated by overhead traction. The patient should be completely relaxed under cyclopropane or ether anesthesia. Then, with the arm extended high above the head and in the most complete abduction, an assistant should make direct traction while the surgeon manipulates the bone fragments into position. When the traction is gradually released, the muscle pull seats the bone ends in apposition. Then an internal triangular splint, made of ordinary basswood, strapped together with adhesive and padded with cotton, is strapped to the chest wall with the apex well up in the axilla; and the base, which for an average person is about eight inches long, extends from the lower chest wall to the elbow joint, while the other leg of the triangle supports the arm from the shoulder to the elbow. The lower part of the humerus is strapped to this leg of the triangle and the elbow is flexed to 90 degrees and the wrist held midway between pronation and supination. A shoulder cap is now made up of fresh plaster of Paris bandage in the shape of a T, and the short arm of the T is molded across the shoulder between the base of the neck and the point of the shoulder, extending well down on the anterior and posterior chest walls. The long arm of the T is molded down the outer side and back of the arm to the elbow, then around the elbow and out to the wrist joint. Next, a roller bandage is used, beginning at the wrist and extending up the arm to the shoulder and then several turns around the chest, finally completing the dressing in such way that there is complete immobilization of the shoulder and elbow joints. A sling around the forearm completes the dressing for the day time when the patient is up and around. At night a pillow between the forearm and abdomen and lower chest allows very comfortable rest on the back.

Fractures of the surgical neck of the humerus, where there is no displacement of the fragments and in those where there is impaction with very little shortening, should not be manipulated at all but placed in a fixation dressing similar to the one described above and allowed to heal. Some of the impacted cases have to be broken up in order to correct the shortening of the bone.

Fractures of the shaft of the humerus are caused by direct violence or by muscular action which twists the bone so that it breaks. All varieties of fractures and displacements of fragments may be seen here. Blood vessels or nerves, especially the musculospiral, may be injured with this fracture. It is very important to determine whether or not there is a musculospiral nerve injury before treatment is instituted in one of these fractures; and the paralyzed forearm with wrist drop, when present, should be called to the attention of the patient and his family in the presence of witnesses. Otherwise you will most likely be arraigned in the courts on a charge of malpractice and the paralyzed arm paraded before the jury as evidence of the negligent treatment the patient has received at your hands. I have treated one of these and was fortunate enough to discover the paralysis at the first examination. Union is more likely to fail in this than any other bone, a fact that is explained by poor reduction and deficiency of immobilization, rather than by poor blood supply in the bone.

The first step in the treatment is to determine with a roentgenogram the exact condition and position of the bone fragments, then, under a general anesthetic, the fracture should be reduced to the best possible position and a dressing applied that will hold the fragments in apposition and immobilize the shoulder and the elbow. Here again I have found the internal triangle in the axilla, with a molded plaster of Paris shoulder cap and arm splint, the most suitable dressing. This should be worn about five or six weeks and be inspected at regular intervals so that any attention necessary may be given to keep the dressing in good condition. Then the dressing is removed and a forearm sling is used while the function of the shoulder and elbow is being restored.

If reduction should fail, traction should be applied through an overhead pulley, being attached to the arm by means of adhesive or a Kirchner wire through the lower end of the radius. After two or three weeks of treatment by traction, most of these fractures can be put in an ambulatory dressing

for the last three weeks of treatment. Practically all of the compound fractures of the humeral shaft should be treated by overhead traction so as to allow easy access for the frequent change of dressings that is necessary. We should be very conservative about amputating these compound fractures with extensive soft tissue damage, because in some of the most hopeless looking cases we are very often able to salvage a fairly good arm.

The most frequent severe complication of fractures of the surgical neck is damage to the nerve or blood vessels in the axillary space with a subsequent paralysis of the arm, or traumatic aneurism with an extensive hematoma in the axillary space. I have had one such case which required ligation of the subclavian artery to save the patient's life and finally I had to do a disarticulation of the shoulder joint because of failure of the development of sufficient collateral circulation to nourish the arm.

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## THE MECHANICAL TREATMENT OF CERVICAL ARTHRITIS

By
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Subacute and chronic cervical arthritis, with referred pain to the shoulder and arm or to the precordium, was discussed in a paper by Hanflig in 1936 in connection with his series of thirty cases.[1] He reported that all of these cases were relieved of symptoms by active head traction and manipulation of the cervical spine. His procedure for accomplishing this was as follows:

The patient is seated on a chair under a block and tackle head sling suspension apparatus. The head sling, well padded at the chin and occiput, is applied and traction exerted until the patient's buttocks swing freely when rocked, just above the seat. An assistant steadies the shoulders while the head is forcibly rotated to the left and right. This procedure is repeated several times with short periods of rest between. Subsequent treatment consists of hot applications to the cervical region, active exercises, and the wearing of a Thomas collar for several months. The latter is dispensed with in mild cases.

The author's conclusion is that such treatment is effective in relieving symptoms by allowing a better carriage of the cervical spine by mobilizing adhesions, breaking up bridging of fine calcifications and relieving muscle spasm.

In adopting his method for use in similar cases in my own practice, I have been frequently confronted with patients with pain in the cervical region, and sometimes in the shoulder, that I felt quite sure was not due to cervical arthritis. None of these cases has shown any limitation of motion of the cervical spine or given a history of radiation of the pain from the spine. Subacute or chronic tonsillitis or pharyngitis was present in many and one case had a chronic sinusitis. The symptoms of the latter cleared up after a few irrigations. Two obtained relief from their pain after tonsillectomy. In other words, local rheumatic-like pains in the region of the cervical spine, shoulder and elbow, due to demonstrable focal infection, can closely simulate the root pains caused by nerve pressure in cervical arthritis and be easily confused with them.

"Neck stretching," according to the technic described, is not yet generally used and, as a consequence, its good results in carefully selected cases appear dramatic and spectacular to referring doctors as well as lay people. Hence, one doing such work might possibly, as a result of enthusiasm or of pressure brought to bear on him by referring confreres, cause this valuable procedure to fall into disrepute by using it in ill chosen cases.

During the past eight months, I have had twenty-one cases presenting symptoms of pain in the cervical region, shoulder girdle, arm, or more rarely the precordium, referred to me for "neck stretching." After careful history and examination of each individual case, I have subjected only ten of this series to repeated neck stretchings. These ten showed, by x-ray examination, definite signs of cervical arthritis, either hypertrophic, atrophic or traumatic. Of course the time has been too short to judge end results but all have obtained some measure of relief. The other eleven, a few of whom had x-ray evidence of cervical arthritis, also demonstrated active foci of infection in the form of tonsillitis, pharyngitis or sinusitis

1. Hanflig, S. S.: Pain in the Shoulder Girdle, Arm and Precordium Due to Cervical Arthritis, J. A. M. A. 106:523 (Feb. 15) 1936.

and were referred to other doctors for eradication of these foci. All of these patients have obtained relief from their pain after elimination of the infection.

The use of "neck stretching" as a differential diagnostic test, in cases of demonstrable cervical arthritis in the presence of an active focus, is conceivably logical and has been used in one case. This patient had moderate hypertrophic changes in the cervical spine and a chronic tonsillitis. The pain was over the posterior aspect of the cervical spine and did not radiate. There was some pain in the left shoulder. X-rays of the left shoulder did not show any arthritic changes. Three series of neck stretchings gave no relief and so it was assumed that the pain was not due to root pressure. Tonsillectomy was advised and done three weeks later with complete alleviation of pain shortly afterward.

I have had no opportunity to evaluate the use of "neck stretching" as a therapeutic test in patients having root-like pains in the arm, shoulder or precordium without demonstrable x-ray evidence of cervical arthritis as I have not had occasion to see any such cases.

CONCLUSIONS

1. Active "neck stretching" and neck manipulation, as advised by Hanflig, are valuable procedures in relieving root pains caused by cervical arthritis.

2. Active "neck stretching" is a valuable diagnostic procedure in differentiating the possible cause of pain in the neck, arm or shoulder in patients having cervical arthritis and an accompanying focus of infection.

3. Individuals proven to have cervical arthritis and accompanying pains in the neck, arm or shoulder should be carefully checked for the presence of possible foci of infection.

4. Foci of infection, if found, should be eliminated before subjecting the individual to "neck stretching" as a therapeutic procedure for relief of pain in the shoulder, arm or precordium.

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**Hernia in Infants and Children**—The contents of a hernia in an infant or child differ from those in an adult. Omentum is rarely present as it is not developed well in children. Usually the sac contains intestine, though any part of the abdominal organs, such as appendix, liver, bladder, ovary, uterus, or undescended testicle, may also be found. —*Horsley, Virginia M. Monthly, December* 1937.

## MANAGEMENT OF OCCIPUT POSTERIOR POSITIONS*

By
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It is not my purpose in this paper to introduce any new methods of treatment of occiput posterior positions but to review the diagnosis of these cases and the best accepted plan of management. Though occiput posterior positions have been discussed at great length for many years, they are still a major obstetrical problem. The persistent types cause more fetal and probably as much maternal mortality as any other complication.

Barton Cooke Hirst in 1888 said: "If I were to be asked what one obstetrical difficulty in my experience has caused the most maternal and fetal deaths; what one had caused the most maternal and fetal accidents, not necessarily fatal accidents, however often making the rest of life worthless, or, still worse than merely worthless, a tragedy, I think I would say occiput posterior positions." I am sure that this statement could be repeated by most practitioners as being equally true today as it was in 1888.

The diagnosis of posterior positions is, of course, of prime importance if the case is to be handled properly. Prenatal care should include frequent examinations in the few days before expected labor so as to determine the pre-labor position, this to be checked at the onset of labor. Having made the diagnosis of a posterior position, we are on our guard and are thus in a measure prepared for any eventuality.

Examination is facilitated by the four maneuvers. With these procedures we find the back toward one flank with the soft parts directed anterolaterally toward the opposite side, and the head down with the cephalic prominence near one of the iliopectineal eminences and a depression opposite the other. The heart tones are deep in the flank and distant from the ear and are usually more audible on the side to which the back is directed. In cases where the membranes have ruptured and the uterus is in close contact with the fetus, the heart sounds are heard anteriorly as in anterior positions.

With the beginning of labor, the pains at first may be slow and nagging, later becom-

*Read before the Northwestern Division of the Association, Decatur, June 17, 1937.

ing stronger, but do not come as regularly as usual and do not produce the amount of advancement expected in proportion to the pains and the time consumed. The membranes frequently rupture before labor, or soon after the beginning of labor. This, however, does not concern us as much as formerly. These findings are especially noted in multiparae. Frequently the whole pelvic floor is forced down with each pain but on manual examination no progress is noted, and the occiput is found in the posterior position. Vaginal examination discloses the head riding high, usually, the cervix frequently not completely dilated. The sagittal suture is located and traced to its extremities. In the right occiput posterior position this suture will be found in the right oblique diameter of the pelvis, with the large fontanel situated anteriorly, near the left iliopectineal eminence. The posterior fontanel, which is at the junction of the sagittal and lambdoid, is often obliterated due to the moulding of the head. The fontanel is found by tracing the sagittal suture posteriorly and to the right, near the sacroiliac articulation.

Of course, in the left occiput posterior position the sagittal suture will be found in the left oblique diameter but the cranial landmarks are the same. At times, especially after labor has progressed, there will be found a large caput so that identification of the sutures is difficult. Here we find it necessary to introduce the whole hand, under anesthesia, carry it past the head and locate the ear or back of the fetal head and neck.

The diagnosis thus being established, the pelvis measured to be sure that there is adequate room for a delivery from below, the treatment is the next consideration. During the first stage of labor, the relief of pain is of great importance. There is a large variety of sedatives that may be employed, the most satisfactory being nembutal and sodium amytal with morphine or scopolamine, rectal ether in oil or paraldehyde. We feel that it is especially necessary in the occiput posterior positions to give sedatives so as to limit the amount of pain and exhaustion of the patient, and to the end that her strength may be conserved for the second stage. Any preparation of pituitrin is certainly contraindicated in the first two stages of any occiput posterior position.

In from 75 to 85 per cent of occiput posterior positions anterior rotation occurs and delivery takes place in the usual manner. Failure to rotate occurs in the remaining 15 to 25 per cent of cases. It is thus very apparent that a policy of watchful waiting for a reasonable period of time in the second stage will be rewarded by a normal delivery. The 15 to 25 per cent of persistent occiput posterior cases are the ones which cause all our difficulties and our fetal and maternal mortality. In the first stage of labor dilatation may be slow, even with hard pains. In these cases a bag may be inserted and dilatation facilitated with very satisfactory results. In the second stage of labor, if the mother and baby are in good condition as determined by the fetal heart, the mother's general appearance, blood pressure, etc., and at least one hour of hard regular pains with little or no progress being made and the occiput still being posterior, the practitioner has the choice of several procedures. The procedure to be used will be dependent on the practitioner's training and previous experience. What may be an ideal and easy maneuver in one man's hands may be very difficult in another's.

The most frequent procedures in occiput posterior positions, which have remained posterior after a period of expectant treatment, are as follows:

1. Manual rotation,
2. Internal podalic version with extraction,
3. Forceps rotation and delivery,
4. Cesarean section.

Manual rotation is probably the easiest and most satisfactory of the above procedures if carried out before the head becomes impacted in the pelvis. It is accomplished by having the patient under a general anesthetic, ethylene or ether being preferred. Into the vaginal canal is instilled mercurochrome, hexylresorcinol or some other good antiseptic; then the hand is passed into the vagina grasping the head with the thumb and fingers, and, while rotating the head, the external hand manipulates the anterior shoulder across the abdomen; that is, a left occiput posterior is converted into a left occiput anterior and a right occiput posterior into a right occiput anterior. It is usually necessary to push the head up to some degree while doing this maneuver.

Some men prefer to go up vaginally and rotate the posterior shoulder, thus accomplishing the same result. When once the position has been changed to an anterior one, labor usually progresses rapidly. If it does not forceps may be applied. It is necessary, however, after manual rotation, to hold the head in the anterior position until two or three pains have fixed it in the pelvis, otherwise it may rotate into its original position. Internal podalic version and extraction are practiced by many to overcome this complication. This is better accomplished when the bag of water is unruptured and with the patient under a general anesthetic. The perineum is ironed out and the technique of Potter and Williams is followed. This is a very satisfactory procedure, but is not to be attempted by any one without experience. It is best accomplished before the head becomes deeply engaged as it is very damaging to both baby and mother.

The use of forceps for correction of occiput posterior positions is probably the most widely employed technique exclusive of manual rotation; and the best method is the modified Sconzoni of Bill. The cephalic application of the forceps is made and the handles are depressed somewhat so as to bring the blades of the forceps more nearly in the long diameter of the head which has as its poles the vertex and chin. This is advisable owing to the imperfect flexion of the head. The forceps are locked, and the handles are raised toward the opposite groin of the patient. This maneuver has a tendency to favor flexion of the head. Without traction, the handles are carried around in a circle so that, during the various stages of rotation, they point, first, toward the groin of the patient, next toward the thigh and finally almost downward toward the floor. This rotation is continued until the occiput lies directly under the symphysis pubis. Before the forceps are removed some traction is made to fix the head in the new position. The forceps are then reapplied with as little manipulation as possible, inserting the posterior blade first, and then delivery takes place as in any anterior position.

In recent years several new straight forceps have been devised, with the usual cephalic curve but with no pelvic curve. These are especially recommended by their inventors for the correction of occiput posterior positions since the handles do not have to go through the large arc described by the forceps with the pelvic curve. As yet, these forceps, of which the Kelland is probably the best known, have not been very widely accepted. It seems that it is better for any practitioner to use one good forceps exclusively. He can then become far more efficient with their use.

Cesarean section is frequently employed for the correction of occiput posterior positions, but in the majority of cases it is due to an improper diagnosis. The head fails to engage and for this reason the practitioner, through a faulty diagnosis, thinks there is a disproportion between fetal head and the mother's pelvis. Cesarean section is occasionally justified due to a rigid cervix that fails to dilate. As a general rule, however, cesarean section has no place in the correction of a persistent occiput posterior position unless there is a definite disproportion.

### CONCLUSIONS

1. Occiput posterior position is today the cause of more fetal and maternal fatalities than any other obstetrical complication.
2. No interference should be made until the second stage of labor is present.
3. The most important single factor in the management of occiput posterior positions is proper diagnosis. When the diagnosis is made then expectant treatment should be practiced but not longer than one hour in the second stage, provided the mother and baby are in satisfactory condition.
4. If no rotation occurs, the methods of choice are (1) manual rotation; (2) forceps delivery; (3) internal podalic version; and (4) cesarean section.

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**Achievements of Asepsis**—Can no poet or singer arise in this materialistic age to praise adequately the achievements of asepsis, a gift to mankind which has saved the lives and restored the health of so many millions? Lesser deeds and exploits of the imagination have inspired rhapsodies from the noblest bards. The words of historians and biographers are excellent, but are not enough. An epic is required to record a story of such heroic magnitude, and alas, Homer and Milton are no more! But as we pause at this seventieth milestone to eulogize the authors of medicine's greatest benefaction, may we realize that other secrets of equal import yet lie hidden in nature's inexhaustible storehouse. Who shall reveal them? Remember the admonition of Pasteur, "The mind must be prepared."—*Boland, South. M. J., Dec. '37.*

# STERILITY*

## STUDY WITH THE UTEROTUBAL INSUFFLATION APPARATUS

### A FEW MALE FAULTS MENTIONED

By
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In prefacing a study of sterility with the uterotubal insufflation apparatus, reference should be made to the male who enters into the general picture and determines the outcome in great degree.

Complete diagnostic studies show that the average childless couple presents 4.79 factors, each of which diminishes to some extent their capacity for conception. But such factors of absolute sterility, as it may be called, are found in only 30% of clinical cases. Seventy per cent of couples who apply for relief of childlessness show no single condition alone that would account for their difficulty. They do show, without exception, a group of causative factors of which each one lowers their fertility to some extent and of which the sum total depresses their fertility below the threshold of conception. The multiple factors discussed are partly genital and partly constitutional.

Meaker[1] and associates found that, among the couples who consult them, only about 10% of the husbands and 5% of the wives are free from all objectively demonstrable evidence of infertility. For the purpose of quantitative estimation, his clinic has used for ten years a measurement which they call the uterine index. This is expressed as the ratio between the length of the uterine body and the length of the cervix; the relation is 0.25 in infantile cases and 0.75 or more in cases where normal development has been attained.

In the more obscure details each case of sterility is a question of effective ovulation. No method of examination has ever been found to determine whether or not the ovaries actually liberate mature and normal eggs. Menstruation obviously proves nothing in this respect; some women flow regularly without complete follicular activity in their ovaries, while others conceive even during times of amenorrhea.

Hotchkiss'[2] method of sperm analysis and evaluating therapeutic procedures has contributed greatly to the study of sterility. From Biblical times until the present century the wife has borne the burden of blame for failure to produce offsprings. Until twenty years ago no serious studies of male fertility had been undertaken. It is generally agreed now that the husband bears the chief, or at least partial, responsibility in approximately one-fourth of the involuntary barren marriages, and accordingly his examination is regarded as important as that of his wife.

The study of infertility is not only to detect absolute sterility but also to arrive at an estimation of the relative fertility of each partner, each to be considered separately, and then together as a marital unit. The power of production depends on the sum total of the details of the germ plasm, the physical status of the subjects and their ability to have coitus. If the combination of these factors is below "the threshold level for fertility," no issue will result from the marriage even though each constituent may possess varying positive degrees of fecundity.

In making his studies, Hotchkiss found:

(1) The average volume of the ejaculate is from 3 to 4 cc. Variations from 1 to 2 drops to 10 cc. are encountered. Specimens of less than 0.5 cc. in amount fail to produce an adequate seminal pool, which ordinarily provides a medium for the survival and protection of the sensitive sperm.

(2) The appearance and viscosity of the fresh ejaculate is entirely different from that one-half hour old. Self liquefaction is then completed much to the benefit of motility of the sperm. If the eventual motility is of a good grade it is likely that variations in viscosity have little or no clinical significance.

(3) The *p*H of a seminal specimen usually falls within the range of from 7.7 to 8.5. If no motility is found it is of particular importance to obtain a *p*H determination, for in rare instances a shift to a low reading of 6.0 and 6.2 has been found to be associated with necrospermia.

(4) It is extremely difficult to give a word picture of the motility of the spermat-

*Read before the Northeastern Division of the Association, Gadsden, February 16, 1937.

1. Meaker, S. R.: Gynecologic Aspect of Human Sterility, J. A. M. A. 107:1847 (Dec. 5) 1936.

2. Hotchkiss, R. S.: Methods in Sperm Analyses and Evaluation of Therapeutic Procedures, J. A. M. A. 107:1849 (Dec. 5) 1936.

ozoa. The type of activity, the number crossing a microscopic field and the percentage of inactive cells are all details of interest. Interval examinations are made to determine the viability of the sperm which is usually about 24 hours at room temperature.

(5) The number of spermatozoa is determined by the use of the usual equipment for counting blood cells. A sodium bicarbonate-phenol solution is used as the diluent; it destroys motility to permit an accurate estimation of the cells present in each cubic centimeter and in the total ejaculate. The average fertile male will produce from 100,000,000 to 150,000,000 spermatozoa per cubic centimeter or from 400,000,000 to 500,000,000 in the total ejaculate. One group of eminent authorities states that in their experience pregnancy does not occur if the cell count is below 60,000,000 per cubic centimeter. Hotchkiss has on record a few exceptions to this rule and believes the more reliable and consistent cell counts have been on the basis of cells present in the total volume of the ejaculate rather than in units of cubic centimeters. The bulk of semen undoubtedly originates in the prostate and seminal vesicles, and variations in the amounts of these secretions will accordingly dilute or concentrate the specimen. In the former instances an apparent deficiency may be inferred if the cell count is expressed in cubic centimeters, whereas, the number of sperm in the total ejaculate may prove to be normal. Here, as elsewhere, dogmatic rules are dangerous and it is unlikely that any figure can be decided on as a fixed minimum. When fewer sperm are found, the chance of fertilization is proportionately reduced until a theoretical point is reached at which impregnation is most unlikely. A similarity may be found by comparison with the laws of chance as it affects a hunter shooting at a difficult target with a shotgun; his chances of hitting the object are enormously reduced if the shell is loaded with ten shot rather than with 125 of the same size and weight.

(6) The examiner must be familiar with the variations in the morphology of the spermatozoa just as the hematologist is conversant with blood cytology. A stained smear is prepared and the percentage of atypical cells is established by count. If some of the more complicated stains are not available, the Gram stain gives a fair visualization of the cell structure after proper fixation. Moench[3] has evidence that leads him to believe that, if more than 20 per cent of the cells have abnormal form, sterility or miscarriage will result. In an incomplete but rather large group of cases of proved fertility now being studied I have yet to find an instance of a normal pregnancy attributable to a seminal specimen with excessively large numbers of abnormal sperm, yet this condition is frequently encountered in cases of disturbed fertility. Veterinarians are familiar with this breeding defect in male animals and have means of offering proof of male faults that cannot be obtained in human studies.

The test of time leaves the future to determine the actual value of this important theory, as information is compiled to substantiate or refute the current principles of sperm morphology.

By determining the condition of the male as to the amount of ejaculate, the number of spermatozoa and activity of such cases, they are treated with the gonadotropic factor, using 200 units for the male from pregnancy urine, daily for five weeks. At the end of that time his ejaculate consisted of one drop of semen containing from 6 to 8 normal spermatozoa per high power field, subsequent pregnancy taking place.

A competent investigation of marital infertility must include a careful examination of both partners. The relative fertility of both husband and wife must be established to determine the grade of fertility of the marriage. Wide variations exist in the fertility of men as determined by semen analysis.

The semen constitutes the chief index of

3. Moench, G. L.: Sperm Morphology and Biometrics as Means of Identification of Individual, M. Times & Long Island M. J. 62:33 (Feb.) 1934.

Investigation of Relation of Sperm Morphology to Fertility by Means of Microdissection, Am. J. Obst. & Gynec. 18:53 (July) 1929.

Do Sperm Morphology and Biometrics Really Offer Reliable Index of Fertility? Am. J. Obst. & Gynec. 25:410 (March) 1933.

Evaluation of Motility of Spermatozoa, J. A. M. A. 94: 478 (Feb. 15) 1930.

Technic of Detailed Study of Seminal Cytology, Am. J. Obst. & Gynec. 19:530 (April) 1930.

Moench, G. L.; and Holt, H.: Number of Spermatozoa in Its Relation to Fertility, Urol. & Cutan. Rev. 33:814 (Dec.) 1929.

Sperm Morphology in Relation to Fertility, Am. J. Obst. & Gynec. 22: 199 (Aug.) 1931.

male fertility. The proper ejaculation of its fertilizing power is dependent on the complete analysis of the various factors and constituents of the specimen.

With Hagner's[4] technique, operation in cases of male sterility, in which the fault was occlusion of the epididymis or vas deferens, has succeeded.

### UTEROTUBAL INSUFFLATION

The study of sterility in women is of such magnitude that in this presentation I shall attempt to discuss only the phase which pertains to the patency or occlusion of the fallopian tubes, with a brief discussion of their anatomy, histology, and physiology.

All through the works of Corner[5] and his associates a new understanding of the physiology of the tubes was developed. In working on the oviduct of a sow they found that there was a contraction rate of isolated strips of the tube. The question arose as to whether there was a correlation between the cycle changes as found in the contraction rate of fallopian tubes and those of the Rubin test as determined by uterotubal insufflation in the human being.

Anderson[6] examined the sow's tubes in respect to their histology and physiology and demonstrated that there is in estrus an hypertrophy of the villi at the tubo-uterine junction; and the size and position of the villi themselves are such, in the event of pressure in the direction of the uterus, that they may be shoved back over the tubal opening so as to close it, acting as a one-way valve. He found the pressure necessary to force normal salt solution through the tubo-uterine junction during estrus to be in excess of 200 mm. of mercury, on the average.

Whitelaw[7] used Rubin's kymographic records in comparing the inter-estrus curve of per-uterine insufflation and his records obtained from experimental use on the sow's oviducts were very similar to Rubin's clinical record.

There is a decided difference in the amount of pressure necessary to insufflate taken at the different periods of the menstrual cycle. On the third to the fifth day of the cycle, fluctuations begin, in most cases, almost immediately after the initial rise, which was somewhat lower than at estrus, being around 20 mm. of mercury. Contractions are regular and are between 5 to 9 per minute.

Strictures of the fallopian tubes may be slight or almost occlusive. The passing of bougies is out of the question unless laparotomy is performed. An apparatus has been perfected which supplies and regulates the flow of carbon dioxide combined in a syphonmeter (volumeter), a manometer and kymograph upon which the pressure reached during the insufflation is recorded.

Normal tubes allow the carbon dioxide to pass through freely under relatively low pressure, and oscillations are observed as shown on the kymograph due to rhythmic contractions of the fallopian tubes. They show only slight variation in frequency per minute in the postmenstrual interval when the test is most suitably carried out. *If the tubes are sealed the pressure oscillations are absent.* As a rule, sealed tubes can tolerate a pressure of 200 mm., which has been selected as the high limit of safety in which the tube may be subjected during insufflation. High grade strictures have almost the same significance as complete closure of the tubes. In very rare exceptions (with or without the aid of insufflation or lipiodol injection) is there success in surmounting the difficulty to produce pregnancy.

In case of strictures the rise of pressure is more curved. The descent is more gradual and there is apt to be complete absence or atypical oscillations. Absence of oscillations indicates loss of tubal contractions, or in high grade strictures the initial pressure rise is well over a 100, most often between 150 and 200 mm. of mercury.

If the tube is bound down by firm adhesions on all sides so that its motions are impaired, the rhythmic contractions are not seen, although the pressure levels may not exceed the normal.

Stricture of the tube may be located in the uterotubal junction, at the isthmus, and at points along the ampulla and fimbria. In some cases they are bilateral and symmetrical, and, in others, asymmetrical or unilateral.

(a) In bilateral strictures at the uterotubal junction, distension pain is present and

4. Hagner, F. R.: Operative Treatment of Sterility in Male, J. A. M. A. 107: 1851 (Dec. 5) 1936.
5. Corner, G. W.: Internal Migration of Ovum, Bull. Johns Hopkins Hosp. 32:78 (March) 1921.
6. Anderson (Not available in my office.)
7. Whitelaw, M. J.: Tubal Contractions in Relation to Estrus Cycle as Determined by Uterotubal Insufflation, Am. J. Obst. & Gynec. 25:475 (April) 1933.

as a rule mild, being referred to the midline in the suprasymphyseal area. There is no lateral radiation of pain.

(b) In the bilateral strictures at the isthmus, pain is somewhat lateral. The midline pain is also present and prominent. The nearer the ampulla is to the site of obstruction the more marked is the pain reaction.

(c) In bilateral strictures of the ampulla, pain radiates well to the sides. The nearer the fimbria to the site of obstruction, the greater the tendency for pain distribution. Pain sometimes radiates to the lumbar region and sometimes down the thigh.

When pain is present on one side only and there are good fluctuations and a positive subphrenic pneumoperitoneum, oscillation may determine the normal tube. The bubbles in the latter instance are intermittent and correspond with the relaxation phase. In the presence of tubal stenosis the gas escapes from the fimbriated end in a continuous stream which is only mildly influenced, if at all, by the very much impaired contractions of the tubes. In tubal stenosis the pain is due to the distension of the proximal portion of the tube and may be maintained throughout the insufflation. In most cases where the pain is present, pressure is above 110 mm. and is relieved when the pressure drops 30 mm. or more. In complete tubal closure this may be corroborated by the use of lipiodol injection, but, as a rule, the $CO_2$ will pass through in cases where the lipiodol will fail to enter.

Rubin,[8] in a study of the status of residual tube following ectopic pregnancy, noted that those who have had a tubal gestation exhibit a slightly lower fertility than the average woman. In studying the pressure records it was found that, in general, where they were high, that is, above 150 mm. on one or more tests, though some degree of patency was present, the succeeding pregnancy was apt to be another ectopic. On the other hand when the pressures were lower, more approximating from 100 to 110 mm. of mercury, the future pregnancy was more likely to be intra-uterine. When the pressure ranged between 120 and 150 mm., the patient was likely to develop an extra-uterine gravidity.

Intra-uterine pregnancy occurs with sufficient frequency after an operation for tubal pregnancy to encourage conservation of the residual tube. It occurs in spite of impairment in tubal patency.

In Stein's[9] study, he found the use of antispasmodics, such as advised by Meaker, to be of great value in those cases of spastic obstruction of the tube.

Guttmacher[10] calls attention to the two methods to determine patency of a woman's fallopian tubes. The first, such as invented by Dr. Rubin and based on the fact that normally there is an uninterrupted open passage leading through the vagina into the uterus then through the tubes into the abdomen. "Air blown into the vagina in the lower end of the passage will come out the upper end into the abdomen." When conditions are normal the air passes through with from 80 to 120 mm. pressure; when the tubes are closed the pressure continues to rise. If the fallopian tubes are obstructed, the escaping air makes a whistling noise, which can be detected with the aid of a stethoscope. By noting whether the air whistles through both sides we can determine if the right and left tubes are both open.

The second method is to inject into the lower end of the uterus a liquid chemical which casts a shadow when x-rayed.

Kotz[11] states that Rubin deserves credit for having made the greatest single contribution, not only to the diagnosis but also to the treatment of female sterility, for one can within a very few minutes determine scientifically and accurately the patency or nonpatency of the fallopian tubes.

Sutton[12] quotes the indications for per-uterine insufflation, given by Rubin, as follows:

(1) Primary sterility in which contributing causes, including those for which the

8. Rubin, I. C.: Status of Residual Tube Following Ectopic Pregnancy in Relation to Sterility and Further Pregnancy; Analysis of 90 Cases Examined by Uterotubal Insufflation, Am. J. Obst. & Gynec. 28:698 (Nov.) 1934.

9. Stein, I. F.; and Leventhal, M. L.: Infertility and Sterility; Analytic Study of 300 Couples, J. A. M. A. 98:621 (Feb. 20) 1932.

10. Guttmacher, A. F.; and Rand, E.: Life in the Making, N. Y., Viking Press Inc., 1933, Part V, Sterility and Fertility.

11. Kotz, J.: Diagnosis and Treatment of Female Sterility, M. Ann. District of Columbia 3:185 (July) 1934.

12. Sutton, M. G.: Rubin's Insufflation Test, M. J. Australia 2:674 (Nov. 12) 1927.

husband might be responsible, have been eliminated and some operative procedure is contemplated.

(2) Primary sterility in which the patient is known to have passed through a gonorrheal pelvic infection soon after marriage and is at the time free from pelvic symptoms and signs.

(3) Sterility following a pelvic exudate or abscess complicating a puerperium or abortion with or without history of operation in which resolution has apparently taken place.

(4) Primary sterility in which the patient has had peritonitis of appendicular origin to exclude occlusion by tubal adhesions.

(5) One child sterility without a definite history of pelvic infection.

(7) After unilateral ectopic pregnancy to determine the patency of the remaining tube.

(8) After sterilization by tubal ligation to test the patency of the tied or severed tube.

(9) After multiple myomectomy to make certain that at least the uterine ostium of the tube has been left intact.

Bear,[13] in discussing the apparatus as designed by Rubin, stated that it is important to test out the rate of flow before the actual test is made. Exactly 15 seconds are required to raise the mercury to 100 mm. When this occurs there is a certain degree of uniformity for the passage of gas into the tubes. In normal (open) tubes no more than 20 to 30 mm. of mercury are required to keep up the flow of gas. It is a safe rule to follow, not to exceed a pressure of 200 mm. in any given case.

Per-uterine insufflation seems to exert a therapeutic influence as manifested in several ways: by establishing patency of the generative tract; the "pinhole" as associated with a hypo-developed uterus may be partially dilated by the introduction of the cannula which renders it more patulous for the reception of semen; it separates minute adhesions of the folds of tubal mucosa; tends to straighten tubal tortuosities, especially the infantile type; may dislodge a thickened mucus from a narrow to a wider portion of the tube, and may cause separation of small adhesions at the fimbriated extremity.

Rubin,[14] in discussing the technique, or the use of the uterotubal insufflation apparatus, says that he has found the time ratio flow of 15 seconds to raise the mercury column to 100 mm. the most favorable rate of introduction of the gas into the uterus. It may be slower, that is 20 to 30 seconds, but it should never be less than 15 seconds. The uniform rate flow of 15 seconds to 100 mm. serves as a standard of comparison when several insufflations are necessary on the same patient. For the average patient two pulsations suffice to establish a subphrenic pneumoperitoneum and its associated clinical manifestations. Each pulsation represents 30 to 40 cc. In obese patients from three to five pulsations may be necessary. The quantity is seldom in excess of 200 cc.

If fluoroscopic examination is going to be made to determine the gas under the diaphragm, it is to be done immediately after injection is made. If the gas has gone through the tubes in an appreciable amount, there will be pain, referred usually to the right or both shoulders when the patient is sitting in an upright position.

In the interpretation of data of normal tubes, the mercury rises to 40, 60, 80, or even 100 mm. and drops 10 to 40 points and fluctuates several times per minute until the cannula is withdrawn. If there is any obstruction or spasm of the tube, the pressure will go well beyond 100, 140, 160 or possibly 200 before $CO_2$ passes the obstructed point, after which there will be a drop.

The most favorable time to carry out per-uterine tubal insufflation is from the 4th to the 7th day after the cessation of the menstrual flow. During this time the endometrium is flat, the uterine ostia of the tubes are not obstructed by the swollen endometrium obtaining in the premenstrual phase and there is less apt to be bleeding. It is not safe to go much beyond the 11th or 12th day of a menstrual cycle to insufflate the tube if coitus has taken place a short time previously. Ovulation taking place from

13. Bear, J.: Discussion of Rubin Test and Hysterosalpingography in Sterility, Virginia M. Monthly 62:79 (May) 1935.

14. Rubin, I. C.: Uterotubal Insufflation Followed by Pregnancy in 205 Cases Out of Series of 2000 Cases of Infertility; Analysis of Factors Involved With Special Reference to Therapeutic Application of Method, Am. J. Obst. & Gynec. 17:484 (April) 1929.

12 to 16 days, to force the spermatozoa through might cause an ectopic pregnancy.

If unable to get the $CO_2$ through on the first test further insufflations should be done at monthly intervals, even to the 4th, 5th or 6th treatment before giving up as having a hopeless tubal obstruction.

Due to ability to open tubes that are at least partially obstructed, this method of per-uterine tubal insufflation serves as a therapeutic as well as diagnostic procedure. In the past it has been rather an accepted rule that a woman be not considered in the "sterile class" until at least 3 to 5 years have elapsed after marriage without her conceiving. I feel that if these women are desirous of having children and use normal methods in the hope of conceiving, this is rather a long time to wait before being checked to see if the tubes are normal, or if there are any factors about the husband which would prevent conception. Matthew Duncan[15] stated, as far back as 1866, that, on the average, the first child is born about 16 months after marriage.

Ferguson[16] stated that 25% of the last 100, when figured on a basis of the ones through whose tubes he was able to get air, became pregnant. These pregnancies occurred in women who had been barren from 1 to 15 years without a known cause.

According to R. L. Dickinson,[17] an attempt was made by W. Tyler Smith as far back as 1849 to catheterize the fallopian tubes. This method has been abandoned.

With the endometroscopy process some progress has been made in the visualization of the uterotubal ostia, and study of the walls of the uterine cavity, but the same degree of progress has not been made in this study as with the cystoscope in the study of the bladder. Rubin has done considerable work in this regard as well as with the uterotubal insufflation. Using $CO_2$ to dilate, he has gotten very satisfactory results. Insufflation in uteroscopy is absolutely forbidden when there is inflammation.

Normal tubes exhibit peristaltic motions which vary with the phase of the menstrual, that is, ovarian cycle. From three to four peristaltic movements per minute in the interval stage to several more impulses in the ovulation or midintermenstrual phase were noted in experiments with strips of tubes.

In normal cases patients do not feel the slightest pain reactions referable to the tubes themselves. At most they complain of a sense of discomfort in the suprasymphyseal area referable to the uterus which is momentarily distended.

With the aid of the kymograph various degrees and types of tubal abnormality may be diagnosed. The present apparatus employed to test the patency includes a kymograph, in addition to a quantimeter and a manometer. In normal patency the pressure rises to any point well below 100, drops sharply 10 to 30 mm. and rises that many millimeters, more or less, falling again successively three to four times per minute as a rule in the post menstrual phase when the method is most properly used. The initial pressure rise depends upon three factors: (1) the rate of speed of the gas flow; (2) the muscular resistance or tonicity of the uterine wall; and (3) the uterotubal sphincter. As the rate of flow can be a constant factor (say in the ratio of thirty seconds for each siphon pulsation of the automatic volumeter employed in the apparatus) the uterine wall tonicity and sphincter tone can readily be determined in terms of millimeters of mercury.

When a permeable stricture is present, the initial pressure rises as a rule to more than 100 mm. and, instead of dropping sharply and exhibiting oscillations, the kymographic tracing shows definite deviations. The descent of the curve from the initial drop is more gradual. It may exhibit slight oscillations at first or none at all; or it may, upon reaching a much lower level, maintain a more or less horizontal line.

In the presence of spasm the initial rise of pressure is high, up to 150 mm. or more, when a sudden drop is noted, varying between 50 to 100 and sometimes more in depth, after which normally appearing oscillations come into evidence. A combination of spasm with stricture can occur but this is not frequent.

The depth of the subphrenic pneumoperitoneum, other things being equal, is a practical guide as to the type patency, that is, the degree of stenosis present. If, for ex-

15. Duncan, M.: Fecundity, Fertility and Sterility, Edinburg, 1866.

16. Ferguson, R. T.: Tubal Patency Test; Detailed Report of 400 Cases, South. Med. & Surg. 95:429 (Aug.) 1933.

17. Dickinson, R. L.: Surgery, Gynecology and Obstetrics, 1916.

ample, 120 cc. of gas will produce an immediate subphrenic pneumoperitoneum, represented by a meniscus under the diaphragm of one to one and one-half inches in a woman five feet, four inches, weighing one hundred thirty pounds, the same amount of gas in a person of equal height and weight whose tubes are strictured will produce a meniscus approximately one-fourth to one-half in depth.

The heavy stethoscope devised by M. Leff is serviceable in listening or auscultating over the abdomen as the $CO_2$ passes through. In auscultating, if there is any doubt as to the $CO_2$ or gas passing through, if the patient will change position, this gas under the right half of the diaphragm will not be so mistaken.

By auscultating one can get a bruit most pronounced, as a rule, on the side which is normal or patent. This bruit is intermittent in character in normal tubes, the silent pauses being synchronous with elevations of pressure which are in turn synchronous with the contraction phase of the peristalsis. With each relaxation the bubbles are propelled through the fimbria, producing the gurgling sound on the side from which the gas escapes. If the sound is more continuous, however, on one side it indicates a permeable stricture.

When normal peristalsis is exhibited by the tubes during insufflation and the initial pressure is below 100 mm., the prognosis as far as pregnancy is concerned is good; that is, provided all other factors entering into the cause of the sterility have been satisfactorily accounted for.

If the patient is quite uncomfortable on arising after uterotubal insufflation has been done with $CO_2$, the disturbance being in the upper abdomen against the diaphragm causing irritation of the phrenic nerve, if her head is lowered and the pelvis elevated she will be relieved in a very short time.

In a study of lipiodol injection of the tubes in comparison with per-uterine insufflation with $CO_2$, it has been shown that the findings in the case of the latter have compared very closely with those when lipiodol is used.

With $CO_2$ insufflation to demonstrate tubal patency, the gas is rapidly absorbed and leaves no trace in the peritoneal cavity. It is practically harmless, and the slight discomfort is over within a few minutes. It is an office procedure when carried out carefully. Its diagnostic value with respect to tubal closure is equal to lipiodol and the test can be repeated at stated intervals with greatest simplicity.

The intramural portion of the fallopian tube in the living pursues a straight course contrary to that found in anatomical specimens.

That the fallopian tubes, which are histologically not unlike the intestinal tube, are capable of muscular contractions has long been assumed but never until very recently has this physiologic phenomenon been actually demonstrated.

Guthmann[18] was the first to express the opinion that the manometric fluctuations were due to tubal peristalsis. His reasons were based on the well known observation that, when the tubes are closed, fluctuations on the manometer are not observed. When human fallopian tubes are ligated or clamped off at any point from the uterine insertion to the fimbria, there are no fluctuations.

Clinical tubal insufflation was employed by Rubin[19] to determine a possible secondary effect upon tubal contractions during different phases of the ovarian cycle. Fifty-nine women were insufflated on the 10th to the 16th day of the cycle, counting from the first day of the preceding menses. The type of contractions was compared to an equal number from the 16th to the 28th day of the cycle. The uterotubal tonicity, as measured by the initial rise of pressure at which the gas passes the uterine junction into the tubes, was decidedly higher in the group insufflated on the tenth to the 16th day of the cycle and the rate and depth of tubal contractions were also greater.

The therapeutic effect of insufflation on dysmenorrhea, first reported by Peterson and Cron,[20] was studied in 57 cases of sterility. Twenty patients were cured of their dysmenorrhea and 18 were improved for as long a time as they were under observa-

18. Guthmann, H.: Modification of Rubin's Test for Patency of Tubes, Monatschr, f. Geburtsh, u. Gynak. 59:10 (Sept.) 1922.

19. Rubin, I. C.: Twelve Years' Experience With Uterotubal Insufflation; Diagnostic and Therapeutic, Am. J. Obst. & Gynec. 24:561 (Oct.) 1932.

20. Peterson, R.; and Cron, R. S.: Therapeutic Value of Trans-Uterine Gas Inflation, J. A. M. A. 81:980 (Sept. 22) 1923.

tion; 19 patients were unimproved. Eleven patients reported relief for a year or longer, one for seven years.

This showed an improvement of dysmenorrhea following insufflation in 66.6% of 57 patients.

When the gas enters the peritoneal cavity, pressure may be recorded on the kymographic record by the patient bearing down, coughing, sneezing, etc. Pain is of great importance in diagnosing the degree of patency. In the normal case the insufflation is unattended by pain. The patient experiences, in the most, a sense of discomfort characteristic of the menstrual molimen referred to the midline (occupied by the uterus), and a momentary sense of discomfort occasioned by the introduction of the uterine cannula.

In general, the diagnostic significance of pain during the uterotubal insufflation may be summarized as follows: (1) Midline pain; (2) unilateral pain; (3) bilateral pain; (4) epigastric pain; and (5) shoulder pain.

The tubal function in practically all animals is heightened at the time of ovulation and is less marked at other phases of the menstrual cycle.

The uterine mucosa is practically never completely at rest at any phase of the menstrual cycle. Immediately after the cessation of the flow there is already evidence of epithelial proliferation and the process of regeneration may be said to be superimposed on that of desquamation. Every day thereafter the superficial portion of the endometrium takes on an increasing thickness so that, on the 5th day, it is three times as thick as the basal layer; on the 8th day it is 4 to 5 times as thick.

The endometrial glands are proliferating in the postmenstrual interval but they are not yet producing secretion, a process which begins in the midintermenstrual period, and is most conspicuous just before menses. When the test is performed 4 or 5 days after cessation of the menses, the uterine cannula takes up practically no mucous secretion in its small openings at the tip, thus allowing freer passage of the gas and yielding truer intrauterine and intratubal pressure rates.

By choosing the postmenstrual phase, one eliminates the possibility of displacing an impregnated ovum, which may have been discharged into the fallopian tube. By insufflation of the uterus in the postmenstrual interval, the risk of carrying infection is reduced. Also, at this period there would be less danger in the possible displacement of endometrial tissue, this being a far-fetched possibility, which might cause an endometriosis of the peritoneum.

The endometrium though thin offers complete protection against the escape of foreign material from the uterine cavity into the uterine veins.

Carbon dioxide is the best medium for insufflation of any of the gases that have been used up to this date, due to the fact it is absorbed more rapidly.

The machine, with kymograph attached, is a decided improvement over others used in the past, in that we have a permanent record of our reading, and, further, are better able to judge the amount of pressure at the time insufflation is being done.

Peterson and Cron[21] and Rongy[22] were among the first to stress therapeutic aspects of the uterotubal insufflation and with this as a stimulus many others have taken up this method as a therapeutic means of treating sterility cases, as well as for its diagnostic value.

### CASE REPORTS

*Case* 1. (See Figures 1, 2 and 3.)

Patient: Mrs. Z. C. T.; Age 27; Married 12 years.

Menstrual History: First period at 16 years of age, last period (prior to insufflation) was November 14, 1935. Thirty-day type, 5 days duration, 3 pads daily. Pregnancies, none.

Diagnosis: Tubes partially obstructed.

Comment: You will note the gradual decrease in pressure required for $CO_2$ to pass into tubes at monthly intervals.

*Case* 2. (See Figures 4 and 5.)

Patient: Mrs. J. M. D.; Age 35; Married 14 years.

Menstrual History: First period at 15 years of age, last period (prior to insufflation) November 16, 1935. Irregular 28-day type, 3 days duration, 3 to 4 pads daily. Cramping in left side every other month. Pregnancies: Conceived one month after marriage. Miscarried six and one-half months, caused by fall.

Operations: Laparotomy, left cystic ovary and appendix removed, Nov. 15, 1930.

Diagnosis: Partial tubal obstruction.

Comment: Pressure required to gain admission on second reading (Fig. 4) was 200. Fourth reading which was taken 3 months later (Fig 5),

21. Idem.

22. Rongy, A. J.: Primary Sterility, Am. J. Obst. & Gynec. 5:630 (June) 1923.

pressure ranged between 76 and 26 mm of mercury, which was normal.

*Case* 3. (See Fig. 6.)

Patient: Mrs. L. B. B.; Age 20; Married 5 years.

Menstrual History: First period at 11 years of age; 28-day type; 6 to 7 days duration, 4 to 5 pads daily. Cramping first 3 days. Pregnancies: One baby born Feb. 29, 1932. Had not missed period but had flowed profuse and long, had D. & C. May 10, 1935.

Insufflated: Nov. 22, 1935. Last period Dec. 22, 1935. Baby born Sept. 28, 1936.

Comment: Pressure required for $CO_2$ to pass in first attempt was 188 mm., but on second attempt, same examination, the pressure ranged between 40 and 62 mm.

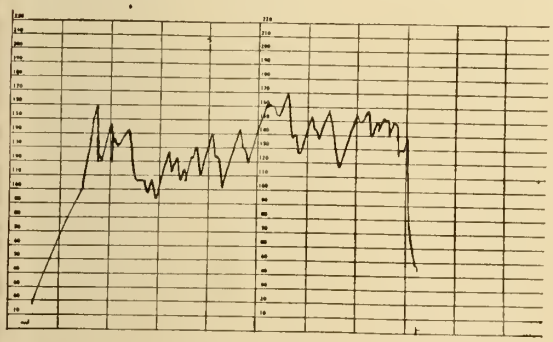


Fig. 1—Case 1

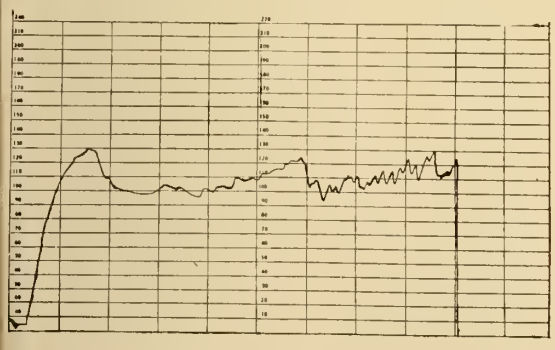


Fig 2—Case 1

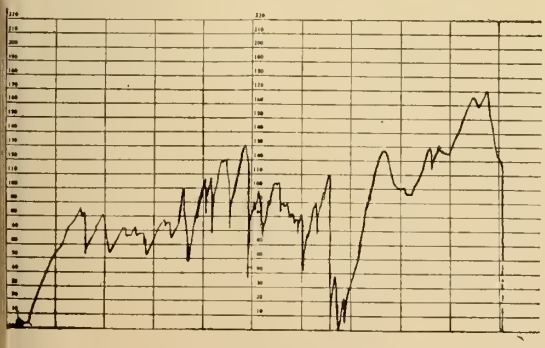


Fig. 3—Case 1

DISCUSSION

Cases 1 and 2 after repeated insufflation showed that the tubes allowed $CO_2$ to pass with pressure sufficiently low to be compatible with conception but on the study of the semen of the husbands of both of these patients there were very few rather inactive spermatozoa present. They would not be checked up by a urologist which lends aid to one of the great problems in sterility study of women.

CONCLUSIONS

(1) In considering sterility it is necessary to, at least, briefly study the male semen as to amount, number of spermatozoa, abnormality, activity, etc.

(2) The average volume of the ejaculate

(Continued on page 280)

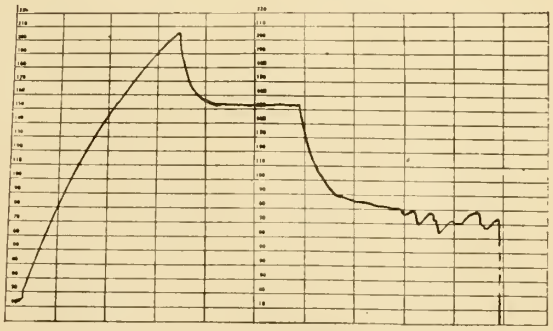


Fig. 4—Case 2

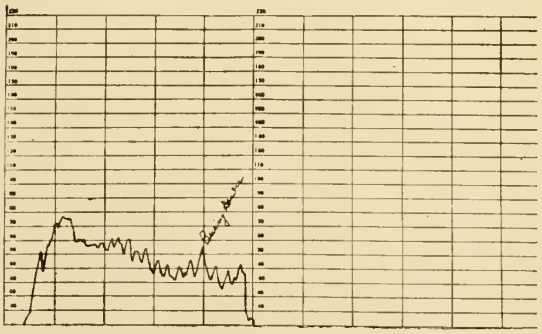


Fig. 5—Case 2

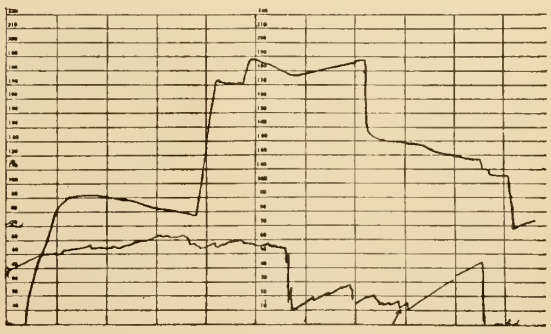


Fig. 6—Case 3

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

January 1938

## LYMPHOGRANULOMA INGUINALE

"We have the choice of such terms as lymphogranuloma inguinale, climatic bubo, subacute lymphogranulomatosis, lymphopathia venerea and the sixth venereal disease for the title of a genito-infectious disease which is supposed to be tropical in origin and usually observed in the colored race. These titles suggest the confusion in the clinical definition that existed in 1925, when the exact diagnosis of the disease was made possible by the specific intradermal test discovered by Frei, of Hamburg. If we accept syphilis, gonorrhea, chancroid (ulcus molle), granuloma inguinale and Vincent's infection as the first five genito-infectious diseases, then lymphogranuloma inguinale becomes the sixth. . . .

"In the past three years at the Massachusetts General Hospital and in private practice we have seen the several manifestations of lymphogranuloma inguinale in white persons of all social levels, most of whom have never been outside New England. Furthermore, the confusion of this disease with other venereal diseases, with malignant tumors, tuberculosis, Hodgkins disease or simple traumatic infection gave us startling evidence that this disease entity is passing unrecognized in white people. These facts predict a wider recognition of a condition that can no longer be regarded as climatic, racial or rare. It is a problem that is usually first met by the family physician and as such deserves the emphasis that we offer here."

Thus do Chapman and Hayden[1] begin their splendid discussion of this subject. Tedder,[2] of New Orleans, says that "lymphogranuloma inguinale is a chronic low grade inflammation of the lymphatic nodes, of venereal origin, resulting in complications of fistulae, esthiomene, or anorectal syndrome in an estimated 50 per cent of infected persons." And he goes on to inform us that 'the incidence of lymphogranuloma inguinale has been surprisingly high where routine Frei tests have been done. . . . Gray and others in St. Louis made a study of patients in the city hospitals and found that, of 790 Frei tests on white and colored patients, the incidence of lymphogranuloma inguinale in the white race was 3.4 per cent and in the colored race 40 per cent. The factor of race susceptibility is very striking in this series. Another point emphasized by these workers was the absence of a history of previous infection in 50 per cent of the patients tested.

"Goldblatt found that 32 per cent of the prisoners quarantined for venereal diseases in the Cincinnati workhouse gave positive Frei tests when tested with several antigens."

Reeves,[3] of Mobile, has been making comparative studies of granuloma inguinale and lymphogranuloma inguinale and his conclusions are as follows:

"(1) With granuloma inguinale a primary skin disease, it can be readily seen that its similarity to lymphogranuloma inguinale exists only in nomenclature and that it is treated by the same medicinal agents.

"(2) Lymphogranuloma inguinale is a venereal disease. This cannot be said of granuloma inguinale.

"(3) A patient with a small or large ulceration around the genitals should receive a darkfield examination, and examination for Donovan bodies, and a Frei test if nodular involvement is evidenced.

"(4) Fuadin is superior to antimony and potassium tartrate (tartar emetic) in the treatment of

1. Chapman, Earle M., and Hayden, E. Parker: Lymphogranuloma Inguinale: A Clinical Study of Thirty Cases of the Sixth Venereal Disease in Natives of New England, New England J. of Medicine, 217:45 (July 8) 1937.

2. Tedder, J. W.: Lymphogranuloma Inguinale, New Orleans Medical and Surgical J., 90: 13 (July) 1937.

3. Reaves, J. Ullman: Granuloma Inguinale, J. M. A. Ala., 6:317 (April) 1937.

either granuloma inguinale or lymphogranuloma inguinale.

"(5) We must be ever alert, else the irritation caused by either of these long standing maladies may result in complications which will either aggravate the condition presenting or overshadow it in severity."

Treatment is divided by Tedder into four groups—physical, surgical, biologic and chemotherapeutic and he warns us that 'the results are routinely poor." The physical agents employed are x-ray, diathermy, ultraviolet light, hot and cold air and hot baths. There is pronounced disagreement among investigators as to the time that surgery should be resorted to and to what extent it should go. The biologic agents include foreign protein, autohemotherapy and the intracutaneous injections of Frei antigen at regular intervals. A horde of drugs have been used and about the only ones that are worth while are antimony and potassium tartrate and Fuadin. As to which of these is the better is still a moot point.

It is evident that knowledge concerning the early diagnosis of lymphogranuloma inguinale is now in a more confused and disordered state than was the case with syphilis before the introduction of arsphenamine and the invention of the darkfield and the widespread use of the Wassermann reaction. With information only beginning to be spread throughout the profession in regard to this disease, it is but natural that patients afflicted with it have been neglected and treated improperly and unsuccessfully. But it is heartening to realize that progress has begun to be made and there is every reason to believe that it will continue and that more and better methods of diagnosis and treatment will appear from time to time. The Frei test has proved its worth and has been of immense value in differential diagnosis. It is now evident that many cases of rectal stricture or fistulae which were thought to be of tuberculous or syphilitic origin were in reality the result of lymphogranuloma inguinale.

The nation-wide campaign against syphilis and gonorrhea is just getting started under the able leadership of Surgeon General Parran. It is not impossible that, in time, lymphogranuloma inguinale will be included in this program of public health.

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# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### TUBERCULOSIS SUBSIDY BECOMES AVAILABLE

The State Subsidy Act, passed in 1931 and amended in 1935, is an attempt on the part of the state government to provide hospitalization for at least some of the cases of tuberculosis in Alabama.

The Act sets forth the conditions which must be met in order that state aid may be given toward the cost of maintenance of patients in hospitals approved by the State Department of Health. It was not to become operative until, in the opinion of the Governor, the condition of the treasury would permit. It has now become effective and the subsidy is being paid to several sanatoria which have met requirements.

Under the terms of the Act, 15 per cent of the bed capacity of the approved institutions must be placed at the disposal of the State Department of Health for Alabama citizens who are not residents of the county or counties concerned, it being the intent that the county from which the patient is admitted shall be responsible for the cost of maintenance in excess of the state subsidy. The cost of keeping a patient varies somewhat in the different sanatoria but, after deducting the subsidy, the cost runs from $1.00 to $1.50 per patient per day.

When it is considered that the counties in which the sanatoria are located have a heavy investment in buildings and equipment, this per diem cost is cheap hospitalization for out-of-county patients. Naturally the number of cases that can be so cared for is limited and those offering the best prospect of results from sanatoria care will be selected.

The procedure to be followed is that applications be made through the County Health Officer to the State Department of Health, which will keep a list of vacancies and act as a selection board. Assurance of

the necessary financial aid must accompany each application. Cases that are particularly suitable for pneumothorax or other operative procedures will be given preference.

The fight against tuberculosis has received a new impetus from this latest development and it is hoped that additional counties will be able to provide hospital facilities for their cases. Calhoun County is the latest to accept the challenge while the counties of Jackson, Marshall and DeKalb, far from being discouraged by the fire which swept their hospital, are planning reopening at an early date.

## SYPHILIS EDUCATION

As a result of the nation-wide interest in syphilis, the Junior Chamber of Commerce in Montgomery sponsored recently a syphilis educational week. It is the hope of the local Jaycees to have the seven other counties, where there is a Junior Chamber of Commerce, present a similar program.

Window displays were set up in several stores. These displays consisted of posters on syphilis and terse statements regarding the number of cases, the death toll, etc., in Alabama. In two windows the drugs used in the treatment of syphilis were given prominence.

The newspapers carried several releases as news items about the program. The Sunday edition of the *Montgomery Advertiser* carried a half-page layout in the science section. A picture showing the Jaycees having blood drawn for a Wassermann test was part of the display.

The local radio station gave generously of its time, and seven broadcasts were made by physicians. The broadcasting time was variable so that different groups of radio listeners were reached.

On the last evening of the syphilis educational week, the still talking picture, "For All Our Sakes," was shown at a public meeting. Each window display carried an announcement giving the time and place of the picture. The radio speakers announced this too, and a sound truck paraded the streets announcing the time and place of the public meeting.

Education cannot be measured by any yardstick except time, so that the good that was done by this syphilis educational week will only be shown in the future.

# BUREAU OF LABORATORIES

Samuel R. Damon, Ph. D., Director

## THE DARKFIELD IN THE DIAGNOSIS OF SYPHILIS

Attention was first directed to the spirochete of syphilis, *Treponema pallidum*, by Schaudin and Hoffman[1] in 1905. The chief reasons why this organism had not been previously discovered by the numerous students of syphilitic lesions are that the organism is very difficult to see unstained in the fresh state, and that it is also exceedingly refractive to stains.

Noguchi first cultivated the spirochete from testicular lesions of rabbits inoculated with human syphilitic material. Later he was able to cultivate the organism directly from syphilitic lesions in man.[2] Pure cultures so obtained will produce typical lesions in the testicle of the rabbit, and when inoculated into the skin of certain species of monkeys cause lesions resembling the primary lesion of syphilis in man. The blood of monkeys so inoculated develops the property of giving a positive Wassermann reaction.[3]

The detection of Treponema is of diagnostic value in the recognition of doubtful cases, and is a factor of considerable importance in relation to early diagnosis and treatment. In the primary stage the diagnosis of syphilis is best established by demonstration of the Treponema in the chancre. Since the organisms do not stain easily, they are most readily detected by examination with darkfield illumination. Ordinary smear preparations of the secretion from primary ulcers and papules often yield positive results, yet, as a rule, the method is not very reliable. Better results can be obtained if the surface of the chancre is flushed with sterile saline solution, dried with gauze and then rubbed with a coarse pad of gauze until serum exudes freely. In most cases numerous Treponema, practically free from admixture with other micro-organisms, can be found in the irritation serum derived from the lower layers of the induration. Kolle and Hetsch[4]

1. Schaudin and Hoffman: Arb. a. d. k. Gesund., 1905, 22, 527.
2. Noguchi: Exper. Med., 1912, 15, 90.
3. Jordan: General Bacteriology, 10th edition. 1931, 531, W. B. Saunders Co.
4. Kolle and Hetsch: Experimental Bacteriology, 1935, 2, 142, The Macmillan Co.

state that by employing small suction cups over the chancre, after cleansing and irritation, many Treponema in the serum can be found when by other methods only a few organisms are detectable. Evidently the strong suction raises the spirochetes from the deeper layers of tissue to the surface.

The darkfield examination for syphilis is a technical procedure which needs to be done under the best of conditions to make it reliable. According to Castleman[5] there are numerous errors that are likely to creep into examinations of this kind. Some of the precautions to be observed are listed as follows: no antiseptic should be used on the sore for at least twenty-four hours before the examination; no internal antisyphilitic drug, particularly intravenous arsphenamine, should be used before the darkfield examination; the sore should be cleansed mechanically and the serum taken preferably from the edge of the ulcer; the specimen should contain, at the most, only a few red cells.

For details of technique in obtaining specimens for darkfield examination, the reader is referred to articles on this subject as follows: J. M. A. Alabama, April 1937, page 342; May 1937, page 365.

Primary syphilitic lesions develop in from ten days to over six weeks after exposure, the average being three weeks. Vigorous treatment, started during the early primary stage of syphilis after diagnosis by means of the darkfield, generally prevents the development of a positive Wassermann reaction. Cases so treated in the early stages are more easily cured than when treatment is instituted at some later stage.

All branch laboratories are now equipped with darkfield microscopes and are able to offer this service in the early diagnosis of syphilis.—Cooper Brougher.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### PLURAL BIRTHS

The birth of twins in Alabama is a comparatively frequent occurrence. In 1936, there were born 744 pairs of twins and 7 sets of triplets. Both twins were born alive in 659 (88.6 per cent) of the pairs; stillborn in 33 (4.4 per cent) and one was stillborn in each of the 52 (7.0 per cent) remaining. Of the 659 pairs, when both infants were born alive, 200 (30.3 per cent) were of males; 227 (34.4 per cent), females and 232 (35.2 per cent), a combination of one male and one female. The above three possible combinations were almost evenly divided, each comprising about one-third of the total.

When twins were both male, a greater proportion (13.0 per cent) of the pairs had one or both born dead than when both were female (9.2 per cent ) or a combination of the two sexes (12.1 per cent). This may indicate that, so far as twin births are concerned, the likelihood of one or both twins being stillborn is greatest when both twins are male. Of the 22 pairs of twins born where one was a male and the other a female and one of the two was born dead, in approximately one-half of the cases it was a female (12) and the other half a male (10).

Of the 744 pairs of twins, 431 (57.9 per cent) were white; 313 (42.1 per cent), colored. About 64 per cent of the population in Alabama is white; 36 per cent, colored.

The probability of the occurrence of twin births increases as the order of the birth increases. Forty-eight per cent of the total number of pairs of twins were of the third birth or less. Twenty-five per cent of the twin births were of the order of the seventh

NUMBER OF PAIRS OF TWINS BORN, ACCORDING TO COLOR, SEX AND WHETHER LIVE BORN OR STILLBORN: ALABAMA, 1936

| Sex | Live Birth or Stillbirth | Total | White | Colored |
|---|---|---|---|---|
| Both Sexes | Grand total | 744 | 431 | 313 |
| | Both alive | 659 | 398 | 261 |
| | One alive | 52 | 20 | 32 |
| | Both dead | 33 | 13 | 20 |
| Both Males | Total | 230 | 127 | 103 |
| | Both alive | 200 | 115 | 85 |
| | One alive | 18 | 8 | 10 |
| | Both dead | 12 | 4 | 8 |
| 1 Male, 1 Female | Total | 264 | 147 | 117 |
| | Both alive | 232 | 137 | 95 |
| | One alive (M) | 10 | 5 | 5 |
| | One alive (F) | 12 | 2 | 10 |
| | Both dead | 10 | 3 | 7 |
| Both Females | Total | 250 | 157 | 93 |
| | Both alive | 227 | 146 | 81 |
| | One alive | 12 | 5 | 7 |
| | Both dead | 11 | 6 | 5 |

5. Casselman: Efficient Laboratory Service in the Syphilis Control Program, J. A. M. A. 107:863. (Sept. 12) 1936.

birth or higher. Correspondingly, among total births (live births and stillbirths), 14 per cent.

A study of the 52 pairs of twins where one of the infants was born dead, shows that in 35 instances (67.3 per cent) the stillborn child was born second; white (60.0 per cent); colored, (71.9 per cent).

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## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### CARE OF THE PREMATURE BABY

(Concluded from the November issue)

*Feeding The Premature*: Human milk is the food of choice for the premature infant. It may be individual, or pooled woman's milk, carefully obtained from healthy mothers having negative Wassermann tests.

Lactic acid evaporated milk or plain evaporated milk—diluted with 1 to 2 parts of boiled water to which is added 5% sugar (Karo syrup)—is an acceptable substitute for human milk.

SCHEDULE

First 12 hours:
No food.
Give boiled water, half strength.
Ringer's solution or 5% glucose 30-90 drops every 2 hours.

Second 12 hours:
Thirty to 120 drops of woman's milk every 2 hours.

Second day:
1/3 to 2/3 ounces of woman's milk per pound of body weight for the 24-hour period. The daily increase may be 1/8 to 1/4 ounce per pound.

At the end of three weeks the premature infant may be given 2 to 2½ ounces per pound.

While the premature infant requires 45-55 calories or more per pound of body weight, no effort to reach these values should be made before the third or fourth week of life.

Absent or poorly developed sucking and swallowing reflexes may indicate need for feeding by Breck feeder, rubber tipped medicine dropper, gavage or combinations of these methods. Frequently the method of feeding parallels, in importance, the quality and type of feeding. Use a small catheter for feeding by gavage, and mark on the catheter the distance from the lips to the tip of the xyphoid cartilage for the depth of insertion. Abandon the catheter feeding when the infant displays sucking movements during the feeding.

The well being and gain in weight of the premature baby will indicate when the 2 or 3 hour feeding interval may be changed to feedings every 4 hours.

Give cod liver oil, 5-15 minims, three times daily; orange juice, 15-30 minims, and syrup of ferrous iodide, 5 minims, three times daily, after the second week.

*Care And Protection Of The Premature*: Prophylactic treatment of the eyes and aseptic treatment of the cord are always essential. The original cord dressing is best left unchanged until the cord is healed. It is of utmost importance to keep the baby warm, endeavoring to retain the rectal temperature between 98.6° and 99.6° F., and to keep its mouth clear of mucus as a precaution against cyanotic attacks.

The bath with water and soap, feeding changes, and clothing must await a maintained, or a definite tendency to normal rectal temperature range, increased activity, gain in weight and other signs of well being.

Do not permit adults or children to visit the premature infant.

A trained nurse is the logical and most dependable attendant for the prematurely born infant. The nursing responsibility should be individual in the strictest sense, and the nursing attendant, in any circumstance, must be free from disease either acute or chronic, even the mildest symptoms, and be without skin affection.

At the earliest expedient time the physician should complete a thorough physical examination of the infant.

Drugs hold a minor role in the treatment of premature infants. Cyanosis, sometimes, is successfully treated by intravenous 50% glucose given 10 cc. every 6 hours. Apneia responds to mother's whole blood injections (10-20 cc.) into the buttocks on alternate days. Oxygen, when available, is a valuable therapeutic measure.

Care, watchfulness, and constant nursing attention are essential to successfully rear a premature infant. J. J. R.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### STATE BOARD OF HEALTH ADOPTS NEW FOOD REGULATIONS

On August 1, 1937, the Alabama State Board of Health adopted regulations governing the sanitation and hygiene of all establishments in which foods, confections, or beverages intended for human consumption are made, prepared, or sold, which are of interest to all citizens.

Every one must eat to live. Many eat most of their meals at home. Many others, however, prepare no meals at home, but patronize public eating places for all their meals. Still others eat at least one meal each day at some public eating place. Even those who rarely eat elsewhere than at home do not completely prepare all their food at home. Much of it is manufactured, or at least partially prepared in bakeries, factories, or canneries, or is obtained at a meat or fish market. In effect, therefore, everyone is dependent, to a greater or less extent, upon the type of place termed "food establishments" in these regulations of the State Board of Health.

The State Board of Health is charged by statute (Subdivision 6, Section 1051, Code of Alabama, 1923, as amended Sept. 9, 1927, and Section 1146, Code of Alabama, as amended Sept. 13, 1935) with the duty of promulgating "regulations for the construction, maintenance, and operation of all establishments, and their immediate surroundings, in which foods or beverages intended for human consumption are made, prepared, processed, displayed for sale, or served," in order that uniform requirements and standard procedure may guide and govern the personnel of the state and county health departments in their efforts to protect the public health from diseases which may be transmitted or spread through foods and beverages.

These regulations are so written as to apply to the operation of bakeries, beer parlors, candy factories, canneries, eating establishments, fruit juice stands, macaroni or spaghetti factories, meat and fish markets, peanut product factories, preserve or pickle factories, sandwich makers, soda fountains, specialty factories making doughnuts, potato chips, ice cream cones, mayonnaise, etc., and others as they develop. They are as concise, complete, and inclusive as such regulations can be made without becoming vague or ambiguous; and as reasonable and non-discriminatory as the principles of environmental sanitation permit. They set forth minimum requirements which should not be wanting at either the roadside lunchstand or the cosmopolitan luncheon club, nor at the home-operated sandwich factory or the metropolitan bakery.

There are several features of these regulations which are innovations: first, they cover all types of food establishments, replacing separate and distinct regulations governing bakeries, eating places, and soda fountains, formerly in effect; second, they provide for the establishment of a permit system; and, third, they authorize the denaturing or destruction of foods unfit for human consumption.

The first innovation promotes administrative and executive simplicity.

The second innovation has been introduced in the interest of improved efficiency and effectiveness. A county health officer is placed at a distinct disadvantage in his efforts to maintain a high level of sanitation and hygiene in food establishments so long as he is uninformed as to newly opened establishments until he finds them in the due course of his inspection activities. A number of fundamental sanitary protective measures, such as hot water connections, sewer connections, screens, etc., may be lacking when the place is first opened for business. Every particle of food prepared and served under such conditions is potentially dangerous. Furthermore, after an establishment has located in a building unsuited to the business involved, or in one needing considerable repair, it is difficult and burdensome, both on the proprietor and the health officer, to correct or remedy the situation on a parallel with establishments which fully comply with the regulations. Such insuperable differences in degree of compliance with regulations constitute unjust discrimination against observers of the regulations, and are the first step in the breakdown of control measures.

Hence, the adoption of a permit requirement. Briefly, before operations may be begun by a newly established food preparing or serving business, and annually thereafter, the operator thereof must obtain a

permit from the health officer, and all establishments now in operation must qualify for permits within a reasonable time after the requirements in each instance are made known to the proprietor. The issuance of such a permit by the health officer is mandatorily predicated upon complete compliance with certain sections of the regulations (pertaining to structure and physical equipment), and operation without a permit, or after a permit has been revoked, is declared by the regulations to be unlawful.

This permit provision of these regulations is predicated upon that portion of Section 1146, Code of Alabama, 1923, as amended Sept. 13, 1935, which reads:

"Whenever the State Health Officer officially advises a judge of probate and/or a municipal corporation that he is in position to enforce the regulations authorized in this section in any county and municipality, *it shall be unlawful thereafter* for the judge of probate or the city clerk of the said municipality to issue a privilege license for the operation of any establishment in which any food or beverage is made, prepared, processed, displayed for sale, or served, unless the applicant for the said license presents a permit for its operation from the county health officer."

There is no valid ground for anticipation that this provision will retard the normal issue of privilege licenses, for the regulations also provide that permits may be issued by the health officer at any time during a period of 60 days antedating the due date of these licenses. Furthermore, county privilege licenses are due 90 days earlier than city licenses.

Very few, if any, county health departments will have proceeded sufficiently far with the enforcement of these newly adopted regulations to have completed the issue of permits in time for the predication of the issue of licenses for 1938 upon such permits. But it is anticipated that by the spring of 1938, in a considerable number of counties, the program will have reached a point such that newly established businesses can be required to obtain permits before licenses are issued. In that event, official notice from the State Health Officer will inaugurate this procedure.

The third innovation of these regulations consists of authorization for the denaturing and destruction "of any food product found in or originating in a food establishment subject to these regulations, which, because of the conditions under which it has been prepared, stored, displayed, or handled, or because of its state of preservation, is, in his (the health officer's) opinion, unsafe for human consumption." The purpose and need of this provision are obvious.

The object of this article is to acquaint the profession with this program of the State Health Department, and to solicit its full cooperation with local health department personnel. Copies of these regulations may be obtained from local health officers, or from the State Health Department.

C. A. A.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 | | Estimated Expectancy |
|---|---|---|---|
| | October | Nov. | November |
| Typhoid | 25 | 17 | 45 |
| Typhus | 67 | 35 | 29 |
| Malaria | 700 | 172 | 418 |
| Smallpox | 9 | 1 | 2 |
| Measles | 11 | 18 | 41 |
| Scarlet fever | 88 | 96 | 212 |
| Whooping cough | 66 | 51 | 74 |
| Diphtheria | 183 | 146 | 258 |
| Influenza | 138 | 354 | 223 |
| Mumps | 33 | 22 | 31 |
| Poliomyelitis | 9 | 6 | 4 |
| Encephalitis | 2 | 1 | 2 |
| Chickenpox | 35 | 93 | 71 |
| Tetanus | 6 | 7 | 5 |
| Tuberculosis | 270 | 208 | 238 |
| Pellagra | 16 | 20 | 20 |
| Meningitis | 8 | 19 | 5 |
| Pneumonia | 91 | 242 | 177 |
| Syphilis | 1919 | 1413 | 143 |
| Chancroid | 16 | 14 | 7 |
| Gonorrhea | 433 | 299 | 157 |
| Ophthalmia neonatorum | 1 | 2 | 1 |
| Trachoma | 0 | 6 | 0 |
| Tularemia | 0 | 1 | 1 |
| Undulant fever | 6 | 2 | 2 |
| Dengue | 0 | 0 | 0 |
| Amebic dysentery | 3 | 1 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 48 | 59 | ..... |

*As reported by physicians and including deaths not reported as cases.

## *Medical News*

*(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)*

Application blanks are now available for space in the Scientific Exhibit at the San Francisco session of the American Medical Association, June 13-17, 1938. The Committee on Scientific Exhibit requires that all applicants fill out the regular forms.

Application blanks may be obtained from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

Members should write today if they contemplate attending the American Medical Association meeting in San Francisco this June and obtain their hotel reservations. See recent issues of the Journal of the American Medical Association, giving list of San Francisco hotels and rates. Send in your requests to Doctor Frederick C. Warnshuis, 450 Sutter Street, San Francisco, California, giving names of members of your party, type of accommodations desired, rates, date of arrival and departure.

The San Francisco session promises to be an outstanding one by reason of the scientific program, scientific and technical exhibits and the social functions. In addition, there is the lure of California with its scenic beauty, majestic mountains, fertile valleys and historical background. An opportunity presents to combine profit of the program with the pleasures of visiting San Francisco, the Golden Gate City, with the two bridges, engineering wonders of the world.

Your visit will ever be one of pleasant memory. San Francisco and the bay area medical profession anticipate the pleasure of being your hosts and cordially invite you to come to the San Francisco meeting.

When San Francisco was selected as the host city for the 1938 session, the profession of this Golden Gate metropolis promptly initiated plans for the comfort, pleasure and entertainment of all who attend that national meeting. A local executive committee on arrangements composed of five members with Doctor Howard Morrow as General Chairman and Doctor Frederick C. Warnshuis as General Secretary, and eighteen subcommittees have been busy since July in developing plans and local arrangement details. Their objectives are the biggest, best, and most memorable annual session in the history of the American Medical Association.

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National Social Hygiene Day, the second observance of which has been set for February 2, 1938 by the American Social Hygiene Association, marks the high point in the year-round effort to gain popular interest and support for the activities of the health authorities and the medical profession in dealing with syphilis and gonorrhea. Interested official and voluntary agencies concentrate their efforts at this time on giving the subject the widest possible publicity, by arranging for meetings of interested groups, press stories and comment, appropriate radio broadcasts, and the like.

The first National Social Hygiene Day, February 3, 1937, was an immediate success in accomplishing its purpose; it was marked by hundreds of meetings held throughout the country. More than a thousand newspaper clippings coming from all parts of the country testify to its uniformly favorable press.

"Stamp Out Syphilis—Enemy of Youth" is the slogan for the 1938 Social Hygiene Day meetings. Particular emphasis will be laid on the control of syphilis among the twenty to thirty years age group, in which more than half of all new infections occur.

Suggestions for meetings and practical community programs may be obtained from the American Social Hygiene Association, 50 West 50th Street, New York City. The Association will be glad to supply interested persons and groups with materials, such as exhibits, films, and literature.

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The second annual meeting of the New Orleans Graduate Medical Assembly will be held March 7-10, 1938.

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The American Medical Golfing Association's Twenty-Fourth Annual Golf Tournament will be held in San Francisco, California, on Monday, June 13, 1938, at the San Francisco Golf and Country Club.

The San Francisco Golf Committee, appointed by General Chairman Howard Morrow, is composed of James W. Morgan, Chairman, Ernest D. Chipman, George A. Gray, George McClure, and William G. Moore. Drs. James Eaves and Walter Schaller, past presidents of the A. M. G. A., are honorary members of the committee.

A 'Golfers' Special" to the A. M. A. meeting is being sponsored by the American Medical Golfing Association. Six games of golf have been arranged on the trip to the Coast; in New Orleans, Houston, Galveston, San Antonio, Los Angeles and Del Monte; and three on the return journey through Portland, Seattle, Vancouver, Lake Louise and Banff.

Non-golfers as well as golfers, and their ladies, are welcome on the 'Golfers' Special."

For full particulars on the A. M. G. A.

Tournament or the "Golfers' Special," write the President of the A. M. G. A., Dr. Dalt P. Conaway, 1723 Pacific Avenue, Atlantic City, New Jersey; or Bill Burns, Executive Secretary, 2020 Olds Tower, Lansing, Michigan.

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The Southern Section Meeting of the American Laryngological, Rhinological and Otological Society will be held at the Georgian Terrace Hotel, Atlanta, January 24, 1938. Contributors to the program will include Dr. S. J. Kopetzky, New York; Dr. J. J. Shea, Memphis; Dr. C. C. Cody, Jr., Houston; Dr. Robin Harris, Jackson; Dr. L. G. Richards, Boston. Also Dr. W. F. Zinn, Baltimore; Dr. V. K. Hart, Charlotte; Dr. Porter Vinson, Richmond; and Dr. W. A. Wagner, New Orleans.

The hour is 9:00 A. M.

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The Atlanta Graduate Medical Assembly will convene at the Biltmore Hotel, Atlanta, January 25-28. There will be clinics, motion pictures, demonstrations and lectures, with time allowed for answering questions on topics discussed. The registration fee is $5.00.

Among those who will contribute to the program are Dr. Ralph Major, Kansas City; Dr. Hugo Roesler, Philadelphia; Dr. A. O. Whipple, New York; Dr. J. J. Morton, Rochester, New York; Dr. Sherwood Moore, St. Louis; Dr. A. Graeme Mitchell, Cincinnati; Dr. J. Albert Key, St. Louis; Dr. A. D. Lazenby, Baltimore; Dr. Ernest Sachs, St. Louis; Dr. W. C. Sandy, Harrisburg, Pa.; Dr. Harry Slack, Baltimore; Dr. A. J. Bedell, Albany, New York.

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The Northwestern Division of the Association will meet in Tuscaloosa on January 21 with Vice-President Merle Smith presiding.

At 10:00 A. M. there will be an inspection of and clinics and demonstrations at Druid City Hospital, the Bryce Hospital, the Partlow State School, the Veterans' Hospital and the Medical School of the University of Alabama.

Luncheon at 12:30 P. M. will be sponsored by the Alumni Association of the University of Alabama Medical School.

The scientific program to begin at 2:00 P. M., with the Medical School as the meeting place, will present as essayists Dr. George T. Pack of New York City; Dr. Ralph McBurney of the University; Dr. Erskine Chenault of Decatur; and Drs. Marye Dabney and Ivan Berrey of Birmingham.

At 5:00 P. M. a reception will be held at the Hotel McLester, with banquet to follow at the same place at 7:00. Requests for reservations should be directed to Dr. J. P. Collier, President, Tuscaloosa County Medical Society, Tuscaloosa.

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Dr. E. W. Rucker, Jr., Birmingham, has been appointed a member of the Council of the Southern Medical Association from Alabama for a regular Council term of five years, the appointment having been announced recently by the President, Dr. J. W. Jervey of Greenville, South Carolina. Dr. Rucker succeeds Dr. M. Toulmin Gaines, Mobile, who, having served the constitutional limit, was not eligible for reappointment.

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The Southeastern Surgical Congress will hold its Ninth Annual Assembly in Louisville, Kentucky, March 7, 8 and 9, 1938, at the Brown Hotel. The program features some forty men outstanding in medicine and surgery, including Irvin Abell, W. Wayne Babcock, Willis Campbell, George W. Crile, W. D. Haggard, Charles Gordon Heyd, Dean Lewis, Quitman U. Newell, Alton Ochsner and Fred W. Rankin. Participants from Alabama will be W. H. Blake of Sheffield; and Chalmers Moore of Birmingham.

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## *Book Abstracts and Reviews*

**A Primer For Diabetic Patients.** By Russell M. Wilder, M. D., Ph. D., F. A. C. P., Professor and Chief of the Department of Medicine of the Mayo Foundation, University of Minnesota; Head of Section on General Metabolism, Division of Medicine, The Mayo Clinic. Sixth edition, reset. 191 pages. Philadelphia and London: W. B. Saunders Company, 1937. Cloth. $1.75 net.

When protamine zinc insulin became commercially available, it was necessary to revise all books dealing with the subject of diabetes for this new form of insulin is supplanting, in most clinics, the ordinary insulin. Details for regulating the dose of protamine zinc insulin from day to day, for supplementing with plain insulin when necessary, or from changing from plain insulin to protamine zinc insulin are of importance not only to patients but to physicians who will be called upon to direct diabetic patients. The treatment of acidosis and coma, and of diabetics undergoing operations, is of great importance to physicians. Details for calculation of

daily food requirements and of substitution of foods in order to avoid monotony, recipes, food tables and height-weight charts are valuable for practical every day use.

Doctor Wilder has written his primer for diabetic patients who are under the care of a physician. It behooves physicians who aspire to treat diabetics to be familiar with its contents.

For the use of the patient, Wilder's Primer is about as good as Joslin's Manual. The physician might find it even more adequate than Joslin's.

C. K. W.

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**Eyestrain And Convergence.** By N. A. Stutterheim, M. D. (Rand), Arts (Staats-Examiner, Holland); Part time Ophthalmic Surgeon to the Johannesburg School Clinic, Transvaal Education Department, Late Assistant Eye Clinic, University of Leyden. H. K. Luvis and Company, Ltd., publishers. London, 1937. 90 pages. Cloth. Price 7s. 6d. net.

The author impressed the ophthalmic world with his "Indications for the Kinetic Treatment of the Eyes" (1931)—to which "Eyestrain and Convergence" may be considered a sequel. The aim of this latter volume is to show general practitioners and ophthalmologists how to deal satisfactorily with the extremely frequent complaint of "eyestrain." He would have the fact appreciated that his principles are based on physiology and that his methods are physiologic. His procedures are founded on the "recognition of convergence as the basic movement of the dual eyes." His inquiries into the physiologic processes involved are most searching and he quotes freely from such authorities as Parsons, Sherrington and Brouwer.

Stuttenheim's theme is that weakness of convergence (asthenovergence) accounts for the greater number of cases of eyestrain. Cure by kinetic treatment is to be expected. His method of treatment is designed to progress until the patient shows ample reserve convergence power—perhaps to the extent of overcoming diplopia produced in distant vision by prisms as high as 50 degrees, base out. The technique of treatment is outlined in full detail and typical cases are presented. The equipment is not elaborate and need not be expensive. It is expedient to quote from the author's summary: "Eyestrain is curable by kinetic treatment. This treatment is designed to unfold the power of convergence."

The reviewer feels that the author has presented a profound physiologic concept and that he has devised a practical remedial procedure of proved value.

J. T. C.

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**Practical Proctology.** By Louis A. Buie, A. B., M. D., F. A. C. S., Head of Section on Proctology, The Mayo Clinic; Professor of Proctology, The Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota. 512 pages with 152 illustrations. Philadelphia and London: W. B. Saunders Company. 1937. Cloth. $6.50 net.

Practical Proctology, as written by Doctor Buie, justifies its title. In its composition the author has drawn from his personal experience and the analysis of the records of patients observed by the Section on Proctology of the Mayo Clinic during the ten-year period 1925 to 1934, inclusive. The wealth of material is indicated by the more than 41,000 proctoscopic examinations performed during this time.

Much attention has been paid to fundamentals but not at the risk of making the text long and tedious. The personal relation between the patient and the physician is stressed and methods employed in the examination of patients are given in detail. The various disorders are treated completely but concisely. Pathological descriptions have been correlated with theories of etiology which will no doubt prove invigorating to many readers. The text is accompanied by frequent plates and illustrations, some in color and citations of cases in point.

In presenting this work, the writer has made a plea to the profession to abandon many of the hopelessly out of date procedures which are employed, all too often, in this field today. More recent and more worthy methods, proven by experience, should take their place.

J. W. D.

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# *Truth About Medicines*

## NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Suprarenalin Solution 1:100 (For Oral Inhalation).—Suprarenalin (New and Nonofficial Remedies, 1937, p. 223), 1 part, in 100 parts of physiologic solution of sodium chloride containing 0.5 per cent chlorbutanol and not more than 0.1 per cent sodium bisulfide. Armour & Co., Chicago.

Cevitamic Acid-Lederle.—A brand of cevitamic acid-N. N. R. (New and Nonofficial Remedies, 1937, p. 456), obtained from the fermentation of certain sugars. It is supplied in the form of tablets 0.01 Gm. and 0.05 Gm. Lederle Laboratories, Inc., Pearl River, N. Y.

Pollen Antigens-"National" (New and Nonofficial Remedies, 1937, p. 39).—The following preparation is marketed in 5 and 15 cc. vial packages representing 25, 50, 100 and 250 units per cubic centimeter: Mixed Grass Pollen Antigen-"National" (Timothy, 75 per cent; June Grass, Orchard Grass, Red Top, Rye, and Sweet Vernal Grass, each 5 per cent). National Drug Co., Philadelphia.

Bismuth Subsalicylate in Oil, 2 grains per cc.—A suspension containing 2 grains of Merck's bismuth subsalicylate (New and Nonofficial Remedies, 1937, p. 133) in 1 cc. oil of sesame. National Biological Distributors, Inc., Baltimore.

Elixir Ipral Sodium.—Contains ipral sodium (New and Non-official Remedies, 1937, p. 106) 13.17 Gm. in 1,000 cc. in a menstrum composed of alcohol 22 per cent, glycerin, saccharin and water, flavored

with a mixture of pineapple concentrate, orange syrup, fluidextract of kola, fluidextract of cascara, and tincture of cardamom compound. One teaspoonful (5 cc.) is equivalent to 1 grain of ipral sodium. E. R. Squibb & Sons, New York.

Sulfanilamide-Monsanto.—A brand of sulfanilamide-N. N. R. (The Journal A. M. A., July 31, 1937, p. 358). Monsanto Chemical Co., St. Louis.

Sulfanilamide-"National."—A brand of sulfanilamide-N. N. R. (The Journal A. M. A., July 31, 1937, p. 358). It is marketed in the form of tablets, 5 grains. National Drug Co., Philadelphia.

Sulfanilamide-P. D. & Co.—A brand of sulfanilamide-N. N. R. (The Journal A. M. A., July 31, 1937, p. 358). It is marketed in the form of tablets, 5 grains. Parke, Davis & Co., Detroit. (J. A. M. A., Nov. 6, 1937, p. 1543.)

## ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following apparatus has been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Rose CW Junior Radiothermy Unit.—This unit is a portable machine designed for medical and surgical use. Terminals are supplied for the conventional pad type of electrodes and for electro-surgical instruments, the latter for coagulating, cutting and desiccating purposes. The transformer temperature rise and the rise inside the cabinet taken at various levels are within the limits of safety prescribed by the Council. The firm submitted tests on the heating efficacy of the unit when applied to the living human thigh. The unit was tried out in actual clinical practice and was found to give satisfactory service. E. J. Rose Mfg. Company, Los Angeles. (J. A. M. A., Nov. 20, 1937, p. 1724.)

## PROPAGANDA FOR REFORM

Elixir of Sulfanilamide-Massengill, Chemical, Pharmacologic, Pathologic and Necropsy Reports; Preliminary Toxicity Reports on Diethylene Glycol and Sulfanilamide.—The American Medical Association Chemical Laboratory reports the results of E. W. Schoeffel, H. R. Kreider and J. B. Peterson, on the chemical examination of Elixir of Sulfanilamide-Massengill; the preliminary report of toxicity studies on rats, rabbits and dogs following ingestion in divided doses of diethylene glycol, Elixir of Sulfanilamide-Massengill and "synthetic" Elixir by E. M. K. Geiling, Julius M. Coon and E. W. Schoeffel, Chicago; the pathologic effects following the ingestion of diethylene glycol, Elixir of Sulfanilamide-Massengill, "synthetic" Elixir of Sulfanilamide and sulfanilamide alone by Paul R. Cannon, Chicago; the clinical and pathologic observations by Homer A. Ruprecht and I. A. Nelson, Tulsa, Okla., and the necropsies of four patients following administration of Elixir of Sulfanilamide-Massengill by O. E. Hagebusch, St. Louis. Deaths and clues of deaths were reported to the American Medical Association headquarters by various press services, by information received from physicians, and chiefly clues from the Food and Drug Administration. The latter organization placed a tremendous force of inspectors in the field. It obtained a list of approximately 700 shipments from the manufacturer. The inspectors then traced every shipment to its final designation. If the bottle had been opened, they inquired to whom it had been dispensed. It was in this manner that most of the deaths were traced after the original reports from Tulsa and East St. Louis. Each suspected case of death was then checked by the American Medical Association by telephoning or telegraphing physicians or other medical authorities. The deaths confirmed by telephone, telegraph or other authoritative communication resulting from the administration of Elixir of Sulfanilamide-Massengill up to and including October 29 make a total of fifty-nine; no responsibility, however, is assumed for its absolute correctness. So far as has been determined, there is no known antidote for diethylene glycol poisoning when the drug is administered in amounts comparable to that given the unfortunate victims. Elixir of Sulfanilamide-Massengill in the specimens examined was found to consist essentially of sulfanilamide 10 Gm. in 100 cc. of a solution of approximately 72 per cent diethylene glycol and water 25 per cent by volume, to which had been added flavoring and coloring material. Diethylene glycol in the doses given was the causative agent in deaths. Pathologic results reported both on animal and on man, as well as many re-

ports received by telephone and telegram, indicate that, in cases of death following the administration of Elixir of Sulfanilamide-Massengill, anuria was present. While sulfanilamide does not appear to have had any appreciable part in the toxicity of this preparation, it is well to emphasize again that sulfanilamide should be used cautiously and, until more is known of its pharmacology, should not be administered concurrently with any other substance except sodium bicarbonate (The Journal A. M. A., May 29, 1937, p. 1888; July 31, 1937, p. 358; Oct. 2, 1937, p. 1128). Diethylene glycol, when taken in divided doses and in amount comparable to those recommended by the manufacturer for Elixir of Sulfanilamide-Massengill, is a decidedly toxic substance and cumulative poison; the pathologic picture was the same in animals that received a 75 per cent solution of diethylene glycol alone, a synthetic mixture made of 10 Gm. of sulfanilamide in 100 cc. of a 75 per cent solution of diethylene glycol, and the Elixir of Sulfanilamide-Massengill. (J. A. M. A., Nov. 6, 1937, p. 1531.)

Deaths Following Elixir of Sulfanilamide-Massengill: III.—Sixty deaths are known to have resulted from the administration of the Elixir of Sulfanilamide distributed by Massengill. Under our present laws there is nothing to require the S. E. Massengill Company or any other firm to divulge the formula or to make adequate pharmacologic or clinical tests before placing a hazardous "patent medicine" or proprietary preparation on the market. As has been cautioned repeatedly, sulfanilamide should not be used with other drugs except sodium bicarbonate. It decomposes in ordinary vehicles. In the case of the diethylene glycol vehicle devised by Massengill, the product did not decompose but the patients did die. In The Journal A. M. A., Nov. 6, 1937, p. 1531, appears an extended report on the chemical composition of the product, on the pharmacologic work following the administration of Elixir of Sulfanilamide-Massengill to animals, and on studies of necropsy material from both animals and man. The chemical analysis shows that the product contained approximately 72 per cent of diethylene glycol by volume. The pharmacologic investigations show that there is no essential difference in the results whether Elixir of Sulfanilamide-Massengill in the doses recommended or comparable doses of a "synthetic" mixture, or of diethylene glycol, are administered. The pathologic examinations reveal that the picture of death is similar in human and animal necropsy material. The terminal symptom in all the instances recorded was anuria. Sixty persons have been sacrificed simply because the toxicologic observations now reported were not determined in advance by a manufacturer who had no hesitancy in importuning physicians to use the elixir. Surely there has been no blacker picture of the inadequacy of our present food and drug laws or the lack of common scientific decency in drug manufacture than that illustrated by this tragic disaster. (J. A. M. A., Nov. 6, 1937, p. 1544.)

Food and Drugs Legislation.—The unnecessary deaths of more than sixty people who took a pharmaceutical preparation labeled "elixir of sulfanilamide," secret in composition and unstandardized, emphasizes again the importance of securing as soon as possible adequate legislation relating to foods, drugs, diagnostic and therapeutic devices and cosmetics. Either by amendment of present food and drugs laws or by the passage of new laws the public must be protected. The Food and Drugs Act of 1906 does not provide adequate standards of purity, potency, wholesomeness and labeling of foods and drugs, nor does it provide for suitable penalties when foods and drugs fail to meet such standards as it does establish. It provides no standards for diagnostic and therapeutic devices or for cosmetics. Moreover, the many loopholes in this legislation make evasion easy for those who wish to evade. The proposed legislation, introduced into Congress beginning with the Tugwell-Copeland bill of the Seventy-Third Congress and passing through various phases in the Seventy-Fourth and Seventy-Fifth Congress, is not adequate. One of the greatest weaknesses is the failure to set up adequate legal standards for drugs and diagnostic and therapeutic devices or to establish machinery by which such standards can be established. Until such standards are created and until the penalties for violation are made sufficiently severe, there will be possible disasters such as the deaths from elixir of sulfanilamide. (J. A. M. A., Nov. 6, 1937, p. 1546. )

## STERILITY

(Continued from page 267)

is from 3 to 4 cc. Variations from 1 to 2 drops to 10 cc. are encountered. Specimens of less than 0.5 cc. in amount fail to produce an adequate seminal pool. The average fertile male will produce from 100,000,000 to 150,000,000 spermatozoa per cc. or 400,000,000 to 500,000,000 in the total ejaculate.

(3) Anderson examined sow's tubes in respect to their histology and physiology and demonstrated that there is in estrus an hypertrophy of the villi at the tubo-uterine junction; and the size and position of the villi themselves are such in the event of pressure in the direction of the uterus that they may be shoved back over the tubal opening so as to close it.

(4) Contractions of the tubes are regular and between 3 to 5 per minute. If the tubes are sealed the pressure oscillations are absent.

(5) Rubin, in his study of pressure records, found that where they were high, that is, above 150 mm. of mercury on one or more tests, though some degree of patency was present, the succeeding pregnancy was apt to be an ectopic.

(6) For the average patient two pulsations suffice to establish a subphrenic pneumoperitoneum. Each pulsation represents 30 to 40 cc. of $CO_2$.

(7) The most favorable time to carry out per-uterine tubal insufflation is from the 4th to the 7th day after the cessation of the menstrual flow.

(8) With the aid of the kymograph, various degrees and types of tubal abnormality may be diagnosed. In normal patency, the pressure rises to any point well below 100, drops sharply 10 to 30 mm., and rises that many millimeters, more or less. In the presence of spasm the initial rise of pressure is high, after which normally appearing oscillations come into evidence.

(9) Carbon dioxide is the best medium for insufflation of any of the gases as it is absorbed more rapidly.

(10) Utero-tubal insufflation with $CO_2$ is not only of diagnostic value but a therapeutic means in dilating the tubes.

1111 South 20th Street (Five Points).

**The Jaundice Symptom**—When one is confronted by a patient with jaundice, the important thing to try to determine, is whether we are dealing with a surgical condition and should recommend an operation, or whether the jaundice is the result of some non-surgical disease and should be treated medically. Therefore, the numerous classifications for jaundice can be simplified on this basis into obstructive and nonobstructive types. Any obstruction such as stone within or tumor externally, causing complete closure of the common or biliary ducts, would prevent bile from entering the intestines, resulting in a rise of bilirubin in the blood stream. This, therefore, would be an example of obstructive jaundice. If, on the other hand, there is an increase of red blood cell destruction and bilirubin formation, resulting in bilirubinemia, due to the liver not excreting it as fast as formed, we have an example of non-obstructive jaundice.—*Baskett, Texas State J. Med., December* 1937.

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**Prostatic Surgery**—Carcinoma of the prostate is three times as common as that of any other internal organ and is found in over 14 per cent of autopsies on males over 40 years of age. In 50 per cent of the cases of carcinoma hypertrophy of the lateral lobes was present in our cases. Carcinoma usually occupies the posterior lobe in the early stages. In its incipiency, carcinoma of the prostate is easily recognized as an extremely hard area in the posterior lobe and is readily curable by a radical operation. If, on rectal examination, an extremely hard area is found it should lead one to suspect cancer. Through the perineum the diagnosis can be made positive. If it is benign a simple enucleation of the lateral and median lobes can be thoroughly carried out, leaving a clean wound with no remaining adenomatous tissue to become infected, slough and cause discomfort or even more serious symptoms. For bars, contractures and early hypertrophies the closed operation is entirely satisfactory, if the proper instruments are used, and great care is taken. For the larger hypertrophies transurethral operations are incomplete, often followed by recurrence of obstruction and painful infections. For all such cases an enucleating operation through the perineum is generally the operation of choice.—*Young, South. M. J., December* '37.

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**Protamine Insulin**—Protamine zinc insulin has made less difficult the handling of many of the complications of diabetes. This has been especially true in the management of the surgical cases. Here we find that a constant dose of the protamine insulin can be given each morning and that only sufficient regular insulin need be administered to take care of the glucose solutions given intravenously. These patients have less nausea and vomiting, seldom develop acidosis, and are more quickly adjusted to their temporary diets. Their wounds heal more quickly and cleanly than previously. Most cases now go through their surgery without hyperglycemia or glycosuria. Patients with infections and gangrene appear to do better and spend less time in the hospital when receiving protamine zinc insulin. Several patients with diabetic neuritis have appeared to us to have recovered more quickly than when using regular insulin.—*Warvel and Shafer, J. Indiana M. A., December* 1937.

# Miscellany

## MEDICAL CLINICS PLAN

### INTERNATIONAL EXPOSITION, 1939

In the huge Hall of Science at the 1939 Golden Gate International Exposition, thirty of America's leading research laboratories will tell the story of the remarkable recent progress which has been made in the prevention and treatment of disease.

Lead by such world-famous institutions as the Mayo Clinic, the Jackson Clinic, the American Medical Association, and the American Society for the Control of Cancer, these laboratories will present a dramatic picture of the latest advances in medicine and its related fields. The exhibit plans will also have the cooperation of the country's leading universities, notably the University of California, Stanford University, the California Institute of Technology, University of Southern California, Harvard University, University of Oregon, and the University of Washington.

According to Milton Silverman, Director of the Hall of Science for the $50,000,000 World's Fair of the West, these exhibits will place the major emphasis on the prevention of disease rather than its treatment. Following a 9,000-mile trip to the outstanding laboratories and clinics of the United States, Silverman reports that amazing exhibits are being planned to illustrate the tremendous strides which are being made in research and disease prevention.

Reservations for space in the Hall of Science have already been made by the Mayo Clinic of Rochester, Minn., and plans are under way for a complete research exhibit at the Fair under the direction of Dr. Charles Mayo, Dr. Donald Balfour, who is now active head of the Mayo Clinic, and Dr. Walter Alvarez, internationally famous physiologist.

Supervised by Dr. Alvarez, a new and improved model of the transparent man will be shown, particularly emphasizing the digestive apparatus of the human being. From the extensive scientific museum at Rochester will come many astonishing displays built for use at the Exposition. Other material especially prepared for the Fair, will show the remarkable technique which has been attained in plastic surgery. Displays showing the prevention and treatment of appendicitis have also been promised and educational exhibits pertaining to diabetes, asthma and experimental dentistry are also contemplated. The Mayo Clinic will also participate in the the cancer exhibit and the embryological exhibit.

The Jackson Clinic of Madison, Wis., will center all its efforts on one central exhibit, the story of the thyroid gland. This display will show the normal activity of the gland and how it secretes the amazing and highly powerful hormone, thyroxin. Special consideration will be given to the remarkable achievement in preventing both physical and mental destruction through the impairment of this gland and the importance of iodine in keeping the gland functioning. Attention will also be focused on the so-called goiter belt stretching across northern United States, and dynamic exhibits will demonstrate the prevention of goiter and cretinism. Dr. Arnold Jackson, head of the Clinic, will personally direct these activities at the San Francisco Exposition.

Two Wisconsin schools planning to participate in the medical exhibit are the Marquette University and the University of Wisconsin. Dr. Eben J. Carey of Marquette, who was in charge of medical exhibits at the Century of Progress, is heading a group which is planning an outstanding exhibit on embryology, "How Life Begins."

At the University of Wisconsin an exhibit is being prepared to show the modern use of drugs and chemicals to alleviate pain. In a cooperative exhibit, University of Wisconsin pharmacologists and anesthetists will collaborate with similar groups from the University of California in a demonstration of modern anesthesia.

An unusual cancer exhibit, which will illustrate the steps being taken to check this most dreaded of all diseases, will have the cooperation of the American College of Surgeons and other noted groups. Use of radium, x-ray, and surgical treatment will be demonstrated as well as modern preventive measures.

Other important subjects to be covered by the American College of Surgeons include the treatment of bone injury, particularly the new plastic bone surgery.

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# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 8** **Montgomery, Alabama** **February 1938**


## CONTRACEPTION†

### PART I*

### SOCIOLOGIC ASPECTS


By

CLIFFORD L. LAMAR, M. D.

Birmingham, Ala.


In this discussion of contraception, Dr. Turlington will deal with the technical details, including a description of various methods used, with an evaluation of their efficiency. I shall try to prepare a background for his talk by taking up the sociologic aspects. By sticking closely to these, I hope to forestall the threats of some of my colleagues to have me expelled from the pediatric union. At first glance it might seem strange that a pediatrist should be interested in birth control; yet, with a little consideration, one must admit that there is no other specialty that offers the opportunity to see so forcibly the ill effects of "unwanted children." By such children, I mean not only those undesired by their parents but those not wanted by society because of the unfavorable environment, for health, happiness and the pursuit of an honest living, into which they are born.

It would be superfluous for me to tell you that accurate contraceptive information is quite often a real necessity for an individual and more often needed for the sake of society. One has only to read current magazines and newspapers to see how the public has taken up this social need, and to read advertisements where such euphemistic phrases as feminine hygiene and marriage hygiene have been used to cover up their actual meaning, which might, otherwise, offend the reading public. There are some people who are inclined to close their eyes to delicate issues and to assume that if these are not recognized they do not exist. The same sort of thing occurs in the instruction of our children in sex matters, in that we are prone to think that, if we tell them nothing, they will know nothing. This attitude produces comparable results in both children and adults. In the case of children, misinformation is acquired and a loss of intimate confidence in their proper advisor results, both of which are unfortunate. In the case of the mother who asks for contraceptive information from her physician and is treated as if the matter were indelicate the result is again misinformation gathered from her friends or the drug store.

In 1927, Dr. J. P. McMurphy read a paper on contraception before this Association. At that time the profession knew little more than the laity about effective methods, but since then so much statistical knowledge has been gathered that the expectancy of success or failure with almost any method can be foretold. Now the physician can recommend a method to suit the conditions of almost any case.

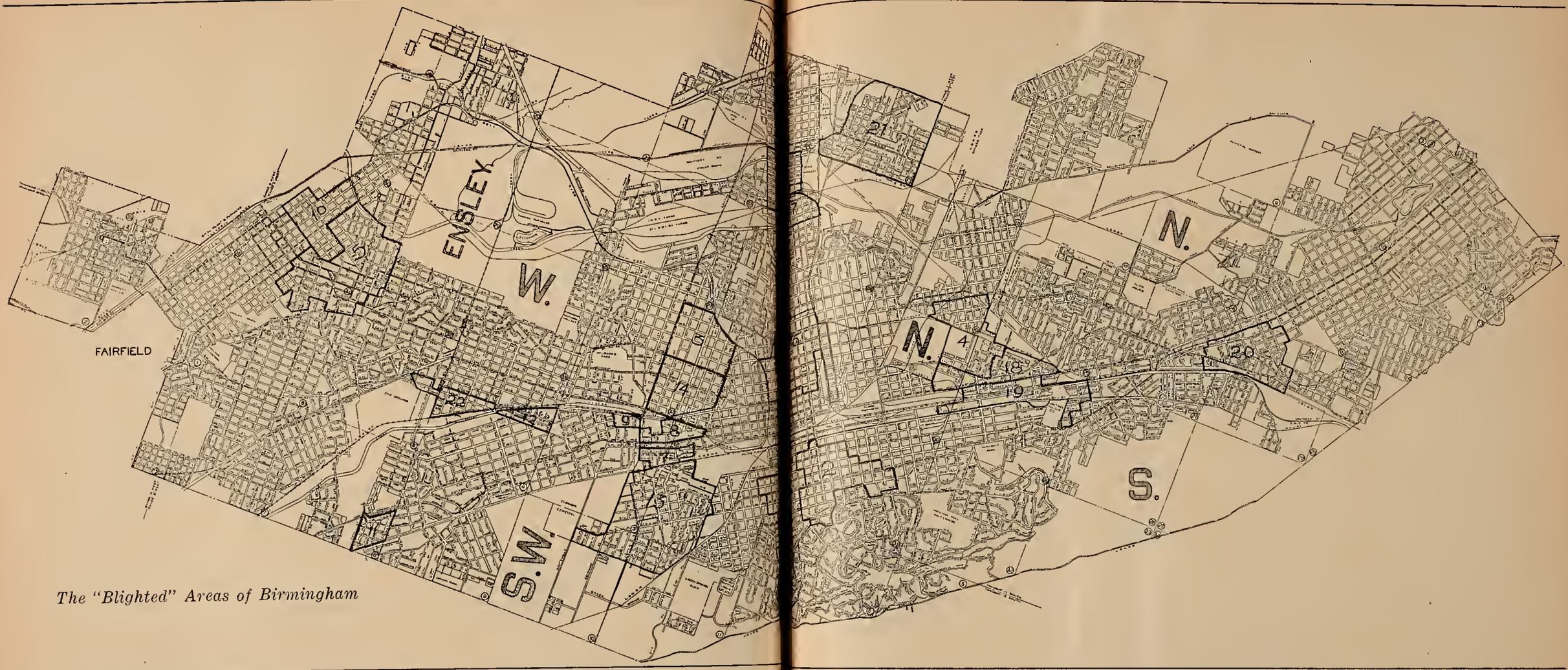
From the sociologic point of view, contraception proposes to reduce our maternal mortality, abortion morbidity and infant mortality—and to raise the standard of living in the marginal and submarginal economic groups. The achievement of any one of these aims would justify the effort and expense that would be required.

#### THE BLIGHTED AREAS

In order to illustrate some of the sociologic problems that are confronting us here in Birmingham, and comparable problems exist in practically every municipality, I would like to show you a map of the city on which are plotted what are called the "blighted areas." The survey which contains the data on these areas was made by the collaboration of the Jefferson County Health Department, the Works Progress Administration and a committee of socially minded citizens. The survey is most

†Read before the Association in annual session, Birmingham, April 20, 1937.

*Part II, The Technique of Contraception, by Dr. Lee F. Turlington, follows.




*The "Blighted" Areas of Birmingham*

comprehensive but there are a few points in it that I would call to your attention:

These areas comprise only 8.9% of the city's total area, yet they contain 22.4% of the total population of the city and 23.2% of all the children.

They are responsible for 40% of the city's cost in the delinquency court.

They have twice the city's rate for petty crime, major crime and cost of medical care (at the Hillman Hospital and Clinic).

They have twice the city's rate for stillbirths and four times that for maternal mortality.

The infant mortality is 50% higher than for the city.

The population is 83% colored and the per capita wealth could not be determined.

The basic factor in all of these areas is poverty, and any amelioration of this condition would be felt by the taxpayers because of the relief it would give our charitable institutions. Any decrease in the number of juvenile delinquents would have both an immediate and a future beneficial effect. The improvement in health would show in our vital statistics because outside of these areas we have a very excellent health record.

### THE STANDARD OF LIVING

No one would be so optimistic as to presume that by any practicable means could this social blight be removed, yet it seems most reasonable to assume that, by the limitation of the size of the family, there would be more of what money and time and effort the mother might have for the proper nourishment and supervision of the lesser number. It is simple arithmetic to say that a family's standard of living is its income divided by the number of individuals being supported by that income—even in case of those families who are on relief and whose income is being supplied by taxpayers. It has been shown by a survey conducted by the United States Public Health Service that, in 1932, families on relief had a birth rate 54 per cent higher than those families not on relief. In the lower economic brackets an additional child or two create a burden that restricts the entire family both as to its present needs and as to its future possibilities; and it is often enough of a burden to shift a self-supporting family to the relief rolls. In the higher economic brackets this extra burden would not make so much difference since there would be more of a financial buffer. However, in this group there is almost always a voluntary restriction in the size of the family to that which will enable them to enjoy not only the necessities of life but also as many educational and social advantages as possible.

### MATERNAL MORTALITY

Maternal mortality in the United States has arrested the attention of the medical profession and the laity. So much publicity has been given our unenviable record that considerable work is being done to improve this condition. I would like to call to your attention another survey, this one on maternal mortality in Birmingham and Jefferson County. It is a joint report of the Jefferson County Medical Society and the Jefferson County Board of Health. This survey, like the one on the "blighted areas," exposes our sore spots and forces us to rec-

ognize their existence. If any of you should be contemplating the improvement of your civic conditions, I would suggest that you first select a health officer like our incumbent, who not only knows how to do things but who has a most amazing capacity for selecting coworkers who are inspiring in their willingness to cooperate with anyone seeking to improve conditions here. In this connection I would like to pay my respects to Mr. George Truss, the department's statistician. Whether he does it with *nth* dimensional geometry or whether he does it with magic, he produces statistics in the most nearly understandable form that I have ever encountered. You will probably be delighted to know that he has condensed for me several pages of figures into just a few tables.

In this first table I have compared, for 1935, maternal mortality rates, infant mortality rates, birth rates and the per capita wealth of Birmingham, Jefferson County and certain states. They show that the Southern States might constitute a blighted area in the United States comparable in some ways to those in Birmingham. Here again the common denominator is a high Negro population and poverty which, unfortunately, are so often concomitant. Wisconsin is included for comparison.

| | Maternal Mortality | Infant Mortality | Birth Rate | Per Capita Wealth |
|---|---|---|---|---|
| Registration Area of the United States | 58 | 56 | 16.9 | $2,263 |
| Wisconsin | 40 | 46 | 18.1 | 2,744 |
| Alabama | 62 | 63 | 22.0 | 1,155 |
| Birmingham | 69 | 64 | 17.6 | 1,485 |
| Jefferson County | 77 | 66 | 16.5 | 1,432 |
| Florida | 87 | 62 | 17.4 | 1,710 |
| Georgia | 73 | 68 | 20.8 | 1,377 |
| Mississippi | 67 | 54 | 24.1 | 1,110 |
| Tennessee | 67 | 64 | 18.9 | 1,667 |
| Louisiana | 79 | 69 | 19.9 | 1,663 |
| South Carolina | 95 | 79 | 22.1 | 1,423 |

In the report on maternal mortality in Jefferson County that I have referred to above, it was stated that "abortions account for 24% of all maternal deaths and for 75% of all deaths in early pregnancy. The fact that 98% of the abortion cases studied made no effort to obtain medical care until they were desperately ill as a result of complications is fair evidence that many were self induced or illegally performed." This 24% in our maternal mortality could certainly be affected by contraception.

### ABORTION MORBIDITY

Unfortunately we have no accurate statistics on the incidence of abortions that do not result in death. It has been estimated that there is one abortion for every four live births in the United States. In examining 246 records from the Maternal Welfare Clinic, I found that 226 abortions or miscarriages had been admitted. How many of these were induced I have no way of knowing since information of that kind is difficult to obtain. One woman did admit having induced fourteen on herself but that seemed almost like boasting. If the usual incidence of interrupted pregnancies is anything like as great as these figures would indicate, the mortality from induced abortions is considerably less than we have thought. Even so, there is an accompanying morbidity during which the mother is prevented from taking care of her children and this is a consideration if we ignore the hazard of death. The records from the Hillman Hospital show that 75 women were admitted during 1936 for some complication of abortion. These 75 women accounted for 436 hospital days, an economic loss to the county as well as to the home.

### INFANT MORTALITY

Here again we have no figures to show what effect too many children in a family have on the infant mortality rate, but we do know, without having to be confronted with statistics, that a child needs more physical attention during his first year; that his requirements for food are more exacting, and that a certain degree of isolation is needed if he is to escape the childhood diseases, so much more serious at this age. The figures for our infant mortality rate include only those children under one year of age, so that all of these factors just mentioned, along with a reduced financial allotment per child and the reduced amount of attention that any one of them can expect from the mother, combine to produce a higher mortality. The fact that there are seven Southern States with a higher rate than ours is of little comfort. These must have been some of the factors that prompted our State Health Officer to tell me several years ago that this high infant mortality is not to be remedied primarily by an increase in pediatric facilities.

### OBSERVATIONS IN FREE CLINICS

It was the observation on the low standards of living, caused by over-large families in those mothers bringing children to

our free clinics, that prompted us to begin a birth control clinic in Birmingham. It is real discouragement to have mothers bring their children in for major or even minor illnesses and know that they will not have the time or facilities for carrying out our recommendations for treatment. It seems futile to admit a child suffering from some gastro-intestinal disturbance to the hospital and know that shortly after he has been returned to his home his condition will probably revert to what it was when he was first received for treatment. We have often laughed at the story of the simple minded individual who continued to bail out the trough of water while the tap was running, but in reality we ought to feel a kindred sympathy.

Unfortunately, the type of mother who presented this problem was such that we realised we would have great difficulty in getting her to follow any contraceptive procedure. Certainly it would have to be one that required the minimum of intelligence and effort. We studied this problem some two years before a partial solution was reached. We would take only those mothers whose health was such that they knew that a pregnancy would imperil their lives and we would try to get the more intelligent of these. We began with women referred to us from the clinic of the local Tuberculosis Association, and then circularized the medical profession here. Unfortunately for us, as far as results are concerned, the various social agencies, including the Department of Public Welfare, recognized the value of the work and we were sent patients who needed help but who represented the type that we had been avoiding for two years because we could expect so little cooperation from them.

We wanted our clinic to begin on a limited basis for several reasons: First, to paraphrase the American Birth Control League's slogan of "Every Child a Wanted Child," we wanted every patient to be a "wanted patient," one who not only needed the protection but wanted the protection and who had sufficient intelligence to follow instructions. Secondly, we had promised our sponsors that we would do nothing that might cause them embarrassment, and since the diaphragm and jelly method represented the most effective method and one that could not readily be passed along to those for whom it was not intended we chose it, knowing that it was not adapted for the masses. In this way I think that we have escaped the criticism of corrupting the morals of the community which we could not have done with other methods, including the so-called "safe period." So far as I know we have given no cause for embarrassment and I do not think that the clinic could have been operated on a higher ethical plane. This I can say without boasting since Dr. Turlington and Dr. Louise Branscomb have had entire charge of the technical side of the work.

You will see in this table our record for new patients:

TABLE 1

1933—103
Patients not returning for fitting after history was given—100
1934—172
Patients not returning for supplies—considered lost—249
1935—224
1936—200
1937— 47
Known pregnancies among all—6

At the present time some 350 patients are returning to the clinic for supplies regularly enough for us to feel that they will continue to cooperate.

The remaining 349 patients might be classified as the "unwanted patients." These are the ones I have referred to as the unintelligent and indifferent. As you can see, 100 never returned for a fitting after their history had been taken.

Mrs. Forest, who is in charge of the medical social service division of the Department of Public Welfare, has been checking over the histories of some 200 of those patients whom she had sent to the clinic to help us determine the cause of our failure to keep them in attendance. She reports only three pregnancies among her group, so it is permissible to think that perhaps we may have been of some help even to them. Mrs. Forest thinks that, on account of the poverty of these women, the small amount involved in carfare accounts as a great deterrent; and that many live so far from the clinic that, in addition to the carfare, the amount of time consumed for a visit would take them from their children for too long a time. Inertia and lack of a desire to protect either themselves or their children would probably account for the

largest number of failures to cooperate. This is exactly the situation that we anticipated when we began our work and we shall have to change our methods if we are to be able to help this group who offer the greatest social problem. One possibility that presents itself is that we can instruct this class of women in a method that would call for less intelligence and that would utilize some home remedy, such as the vinegar sponge, which, while not having the high percentage of success as the diaphragm and jelly method, yet might actually produce better results because it would be used.

Three weeks ago we opened a clinic for Negro patients, from whom, we have been told, we can expect a better measure of cooperation than we have experienced among the white patients. We have recently completed a survey covering four sample districts and including some 771 Negro women. Of these, 692 expressed a desire to attend a contraceptive clinic. One hundred ninety six (196) were using some form of contraception while 575 were not. Those methods were prescribed by a physician in 15 cases, the druggist in 76, salesmen in 55, and by a neighbor or friend in 50 cases. These women had borne 3010 children, giving an average of four children per mother. Fifty five per cent had an income of less than $10.00 per week; 27%, of between $10 and $15; and 9% an income of $15 to $20 per week.

This survey was made to determine the need and the degree of cooperation we could expect from Negro women. There have been some doctors who have maintained that the frequency of miscarriages in this race and the high incidence of salpingitis have accomplished as much in the limitation of the size of families as could be desired. Our results in the survey, and certainly the report on the "blighted area," lead us to the opposite opinion. We are most desirous of remedying the distressingly high maternal mortality in this race. The methods that we shall employ will be determined by the results that we obtain in our Negro clinic. At present we are using the diaphragm and jelly.

In order that you may have some idea as to the magnitude and the effectiveness of the birth control work in the United States I would like for you to examine this table:

TABLE 2

130 clinics instructed 122,547 new patients since their establishment.
130 clinics instructed 25,303 new patients in 1936.
130 clinics had 114,601 total visits in 1936.
78 clinics reported 2,918 failures (all types) in 86,613 patients.
This amounted to 3.4%.
13 clinics reported no known failures.
39 clinics gave no report on failures.

Causes of Failures

| | |
|---|---|
| Husbands uncooperative | 176 |
| Wives uncooperative | 1,008 |
| Methods not understood | 161 |
| Unexplained | 428 |
| Other reasons | 723 |
| Methods not used | |
| Religious conscience | |
| Pregnant when fitted | |
| Faulty equipment | |

CONCLUSIONS

1. It seems reasonable to assume that the limitation in the size of families in poor economic circumstances will improve their standard of living and that this will be reflected in a lower maternal and infant mortality, as well as in fewer juvenile delinquencies.

2. That a tremendous number of pregnancies are interrupted and that the only way to improve this condition is to prevent their occurrence.

3. That the burden placed by these overlarge families upon that part of society which pays the taxes justifies the feeling that this burden should be no larger than can be prevented.

4. That contraception offers a partial solution to these problems and a partial solution is all that any one line of attack can offer.

Note: Since this report was made there has been a marked increase in clinic attendance, showing that the mothers in the community are at last becoming aware of the clinic and the effectiveness of its methods. One additional clinic for Negro women has been established, with the probability of two more being opened early in 1938.

ANNUAL MEETING
MOBILE
APRIL 19-21, 1938
HEADQUARTERS HOTEL
THE BATTLE HOUSE

# CONTRACEPTION*

## PART II

## THE TECHNIQUE OF CONTRACEPTION

By
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*Abstinence*: Of course, practice of abstinence is the only absolutely certain way of knowing that a conception will not occur. Of a thousand marriages of intelligent Americans, Davis found that 8 per cent practiced birth control in this manner.

*Lactation Period*: In the first three months of lactation, three-fourths of the mothers do not ovulate, and half of them do not ovulate during the entire lactation period.

*Safe Period*: Dickinson states in his book on Control of Conception: "We have found 1342 cases, cited by thirteen observers between 1859-1917, in which the day of an isolated coitus resulting in pregnancy was given, as calculated from the first day of the last menstruation and among women whose cycle was twenty-eight days." Of these 1,342 cases, seventeen and six-tenths per cent conceived during menstruation, thirty-seven per cent during the first week, thirty-five per cent in the second week, twenty per cent in the third week and eight per cent in the fourth week or the week just before menstruation.

*Coitus Interruptus* is the most primitive method of contraception and is more widely used throughout the world than any other. Among intelligent individuals it is reported that there are 13 per cent failures. It is obviously undesirable when it does not permit of orgasm for the wife, and when the husband does not have perfect control of the time of seminal emission. Many neurologists and most urologists think the method harmful to the husband even though it may be otherwise a perfect contraceptive procedure for the couple.

*Coitus Reservatus*, in which practice the male trains himself to permit his mate to have one or more orgasms without actually having a seminal emission, has been practiced in a group of social religious enthusiasts. It is said to have been entirely satisfactory from all angles. This method is necessarily desirable for only a very few.

*Coitus Saxonus* is the name given to blocked emission. The semen is forced back into the bladder.

*Suburethral Opening*: In classic Rome and among the Australian aborigines, a permanent opening was made in the urethra just anterior to the scrotum, thus sidetracking the semen of those men who were thought undesirable for parenthood.

*The Condom*: The use of a rubber or skin sheath is the most commonly employed mechanical method of contraception. Recently it was reported that the fifteen chief American manufacturers were producing them at the rate of 1,440,000 per day.

For many this method is satisfactory to both the husband and wife. If proper consideration is given to the selection of freshly prepared sheaths, if the sheath is thoroughly tested for possible perforation or weak spots, and if proper lubrication is obtained naturally or artificially, this method is much safer than the quoted percentages of failure, 40 to 50 per cent, would indicate.

*Douches*: Either medicated or cold water douches are commonly employed by a great many women for the purpose of contraception. This procedure is supposed to flush the seminal fluid out of the vagina before the spermatozoa have entered the cervical canal. In one seminal emission from a healthy man there are 200 million spermatozoa to the cubic centimeter, and there are 4 to 5 cubic centimeters in one such emission. Unless a pressure douche is taken, there is no chance of accomplishing the purpose desired. Pressure douches not infrequently force infectious material into the peritoneal cavity. You will remember that a pressure of 200 mm. of mercury is the maximum applied in the Rubin test. A douche can raised two feet above the level of the nozzle raises the pressure at the end of the nozzle to 60 mm. of mercury, the pressure that frequently forces air through normal tubes.

*Lathering* consists of washing out the vaginal canal with a soap paste. The woman, immediately after coitus, assumes a squatting posture and applies the soap, first to the cervix and then to the rest of the vaginal wall. This method, popular in Japan, has been applied when there have been no facilities for other methods.

*Read before the Association in annual session, Birmingham, April 20, 1937.

*Spermicides*: These, in the form of jellies, suppositories, foam tablets or powders, are chemical preparations designed for placing on or near the cervix before coitus. Some of these concoctions are widely and falsely advertised as 100 per cent effective. The water soluble jellies are by far the best of these. Used intelligently they are claimed to be from 65 to 80 per cent effective.

*Double protection* is the most effective method; i. e., the use of a spermicidal agent in conjunction with some occlusive mechanism, such as a sheath, a tampon or an occlusive diaphragm.

The method approved by most contraceptive clinics and the one taught is the use of a rubber diaphragm which occludes the cervix, in conjunction with a water soluble jelly which has a spermicide incorporated in it.

The fitting of a patient for a diaphragm and teaching her to use it properly is all important. The following figures taken from "The Technique of Contraception" by Dr. Eric M. Matsner, published by the Williams and Wilkins Company, Baltimore, illustrate the important steps of a proper fitting.

The woman who has been properly fitted is instructed to apply at least one half teaspoonful of the jelly over both surfaces of the diaphragm. The diaphragm is introduced prior to retiring and should be left in the vagina for at least four hours after coitus. The usual procedure, in the event of coitus after retiring at night, is to remove the diaphragm next morning. Although a cleansing douche is not a necessary part of the contraceptive procedure, it is usually desirable. The diaphragm after re-

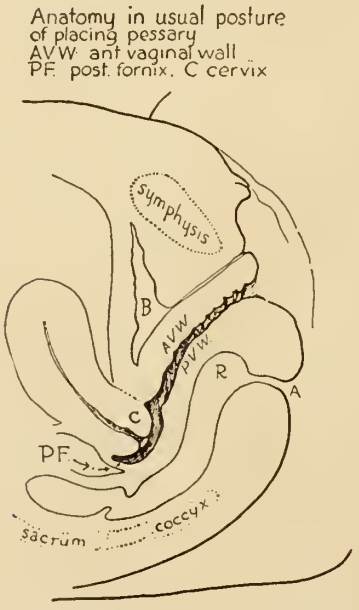



Fig. 1. The normal relationship of the vaginal canal and the uterus.

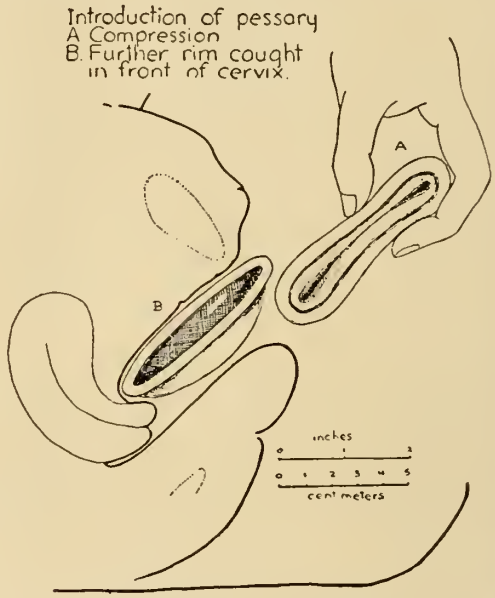



Fig. 2. A—Diaphragm compressed. B—Partially introduced into the vagina.

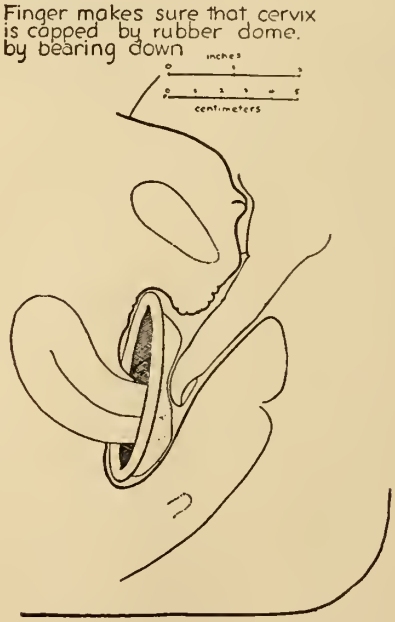



Fig. 3. Diaphragm properly placed. Posterior rim in extreme limit of the vagina, posterior to the cervix; the anterior rim fitting snugly under the symphysis, the finger palpating the cervix behind the soft rubber.

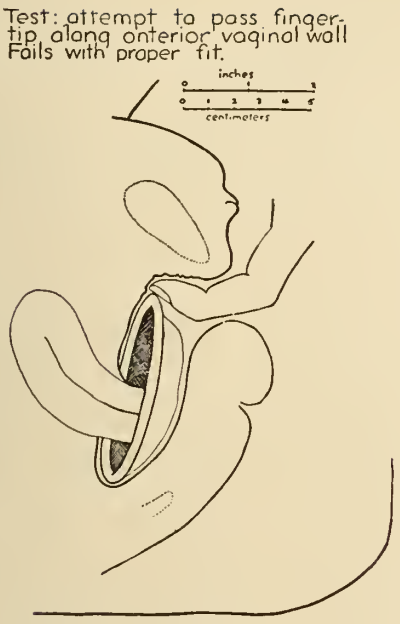



Fig. 4. Examining finger testing fit under symphysis.




Fig. 6. Diaphragm too small; does not fit under symphysis.




Fig. 5. Correctly placed diaphragm during coitus.




Fig. 7. Position of small diaphragm during coitus.

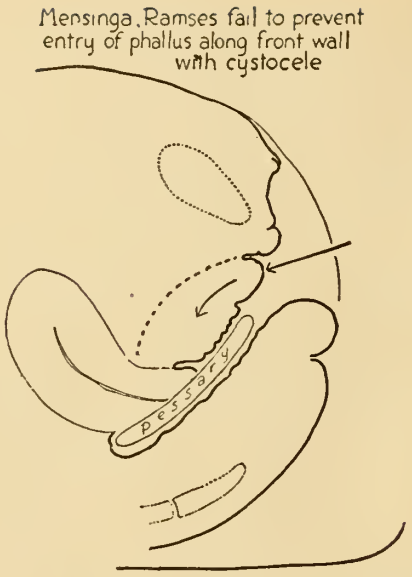



Fig. 8. Presence of cystocele. An ordinary diaphragm will not suffice. Anterior rim will not fit under symphysis.

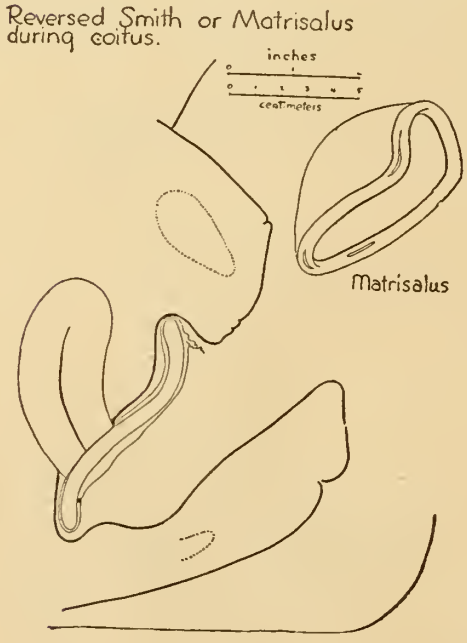



Fig. 9. Cystocele pushed up by reversed Smith pessary over which has been fitted a condom, or a matrisalus diaphragm which is better for the purpose.

moval should be thoroughly cleansed with soap and water and dried. Contact with grease always destroys the rubber. Properly cared for, a diaphragm lasts for a year or more.

There is probably no field in social service, where greater results may be obtained by the expenditure of a small amount of money and conscientious work.

## DISCUSSION

*Dr. Clarence K. Weil (Montgomery)*—The importance of the papers by Doctors Lamar and Turlington cannot be overemphasized. They have presented their subject clearly and logically. They have stressed the need for adequate contraceptive advice controlled by the medical profession and have demonstrated the application of accepted methods. Doctor Lamar has asked that I discuss my own experiences with contraception and tell this assembly what has happened in Montgomery.

Since the beginning of my practice ten years ago, I have been interested in the subject of contraception. At first, advice was asked for by friends and the more intelligent and well-to-do patients. Later, patients were told that they could get the information if they wished it. When I was doing some obstetrics, all mothers were offered advice if they desired it. When health certificates for marriage were requested, contraceptive advice was offered.

During the first few years of the depression, when the Red Cross was doing the social welfare work in my community, the question of contraception was brought up at a meeting of the Board of Directors. With one exception, they agreed in principle with the idea that those on charity should be temporarily denied the right to bring into the world mouths they could not feed but which must be fed by the community. The one objection came from a man whose sincere Catholic faith made it impossible for him to condone what is considered by his religion as a sin. The Board, however, agreed that, though it would be unwise for it to sponsor a birth control clinic or to openly declare itself in favor of contraception, it would, nevertheless, supply contraceptive materials to those whom it was aiding. Furthermore the social workers would attempt to arouse the interest of all married women in the child-bearing age on their rolls, and would even insist, where the families were large, that this service be taken advantage of under penalty of being dropped from the roll.

When government relief took the place of the Red Cross, a conference was had with the head social service worker. She felt that those on direct relief as contrasted with those on work relief should not be allowed to reproduce. When we looked through the rolls, we found that there were practically no women on this list who were young enough to bear children or physically capable of conceiving.

Almost every intelligent adult has some information about contraception, some of it reliable, much of it extremely unreliable. Much of the information comes from the drug clerk, from married

friends and rarely from mothers. The Lanteen diaphragm, which is sold over the counter and which rarely fits, is no more reliable than the lay idea that conception may occur only just after and just before a menstrual period and is no less safe than the cold douche recommended to the bride by her solicitous mother. There is no neurosis worse than that which comes with the monthly fear of pregnancy nor is anything more conducive to failure in marriage than the abhorrence of marital relations on the part of a wife because of fear of pregnancy. If contraception is to be practiced, safe contraception should be utilized. If there is to be any control in the dissemination of this information, it should be through the private physician. The argument that the unmarried will get the information is useless; the unmarried person who wants the information can get it already.

The objection on the part of the Catholic Church is no longer a real one for the Church objects only to chemical and mechanical means of contraception, while approving the use of the safe period. The following seem to me to be indications for contraception:

1. When the woman's health makes pregnancy a real danger. I refer to the mild tuberculous, or cardiac, the diabetic, the nephritic.
2. When the woman may transmit such inheritable traits as hemophilia and certain types of insanity.
3. When the woman has had two or more Cesareans.
4. When the woman has just had a child and is entitled to a year or more in which to recover before going through another pregnancy.
5. When the newly-wed woman wishes time to adjust herself to her new responsibilities before taking on the additional responsibilities of childbearing.
6. When the woman must work to help support her family.
7. When the economic status of a couple is such that an additional child would cause great financial difficulties.
8. When the family is already as large as can possibly be cared for on its income.
9. When the couple wishes to give to a small number of children all possible advantages of education and training.
10. When the head of a household is temporarily out of work.
11. Finally, to all women who for any reason wish to defer the bearing of children. I am convinced that most women have no more children than they want, that a planned and wished for child is more happily received than one that just comes along, and that with or without contraception the size of families will be almost the same, the smaller ones making up in quality what they lack in quantity.

Some people are confused in their own minds as to the relation between contraception or birth control and abortion. There is no relation. The former prevents conception except at such times as it is desired. The latter destroys in utero the life resulting from undesired conception. Facilities for adequate contraceptive advice should reduce abortions with their attendant dangers.

# TUBERCULOSIS AS I HAVE FOUND IT*

By
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To have reached any attainment as a student of medicine, one must first have received the urge to pursue that course in life. Along with, or prior to this intuition, even a premedical student will have learned something about a few diseases. Early in life my attention was attracted to that human illness commonly called "consumption." From the havoc it wrought in many lives, the word's literal meaning was my reaction to the disease. The old, the middle-aged, the children and infants all fell fatally wounded during the battle with the "White Monster."

Soon after beginning the study of the symptoms and signs of diseases, I became anxious to hear what the instructors had to say about the why, the wherefore, and the when of the malady caused by the tubercle bacillus of laboratory knowledge. Strange as it may seem, I came away with many theoretical and classical ways, means and manners of making a physical examination of a patient when looking for the changes that should be present in a case of pulmonary tuberculosis. But I had not acquired much information concerning the characteristics of a person suffering with this infection.

With this meager knowledge of such a dreadful enemy of mankind, my diploma and state license could mean only an authority to set to and learn about tuberculosis from the victims and their contacts. The first cases that came my way were sick unto death and usually already diagnosed by some member of the family or community. For these I could do little, other than help them die easily.

Sometime later in my career, it became more common to pay some attention to those who were not really considered sick, but who came complaining of losing weight for some months; failing to have a normal desire for food; beginning to cough just a little every day, with or without much sputum; did not feel as good as they once did; perhaps had a "little stomach trouble";

*Read before the Northwestern Division of the Association, Florence, October 15, 1936.

had a bad cold that would not get well, or maybe would return too often. Some might have sweats at night, while others said they spat up blood occasionally. Quite a number would tell about a pain in the side or tell how the measles, whooping cough, or influenza nearly killed them and they had not felt good since. Some would say they just could not carry on because of weakness or shortness of breath. No few of them tell of coughing spells on going to bed at night or on arising in the morning. Of this group, nearly all remember that a father, mother or some other member of the family died with tuberculosis.

After getting a story like this from the patient, it is interesting to look it over for some of those classical signs of college days, which all too often are conspicuous only by their absence. However, one may or may not see the manifestations of the loss of appetite and weight by the emaciation exhibited by the undressed body under observation. Some cases will actually fool you by having an increased tactile and vocal fremitus, along with a little dullness over certain areas of the chest. Others will come to your rescue just before you despair in search of increased respiratory murmur or adventitious sounds or even rales. Although, up to this time your findings may be mostly negative, it is not good practice to give up without getting an accurate temperature record which in a majority of instances will show a variation with a sub- or normal reading in the morning and a rise in the afternoon. Another fairly constant finding is an increased pulse rate. When this picture is left by the patient, he is considered a suspect and held as such until proven otherwise by all aids available.

A properly given tuberculin test, when positive, is the index for an x-ray examination, which, when righty made and correctly interpreted, is the sheet anchor in diagnosis. The only laboratory test that is of much value is a sputum examination which may consistently show no bacilli, although your history and clinical findings are positive; or you may have constantly positive sputum with negative findings otherwise.

Once the subject is found to be an actual case he should be informed about it. Formerly, the patient's reaction to this information was rather discouraging, for most of them immediately dismissed the attendant and started hunting a "magician" who knew all and could cure all. Consequently, in a year, more or less, this same patient would call to you for mercy during the exit. Now, however, due to propaganda for better service and to the educational program of the various public health authorities, one does not lose his contact with these cases so often. Further, because of simplified methods and new measures of therapy, one can promise them much and feel reasonably sure of the results.

It has become unnecessary to get excited about sending these patients to a better climate, for, no matter what atmosphere you are in, rest, food and one or more of the surgical aids are the only things by which you can stay the progress of the disease and give back good health to your patient. The institution of the above measures is practically all the therapy needed. True therapy is not merely medication but service to the sick as well. Hurry, agitation and high tension are bad items to let in on these patients. Weeks not days, years not months are terms to use in giving your prognosis and therapy.

### STATEMENTS AT RANDOM

The incubation period is unknown.

So far the only prophylaxis is isolation to the *nth* degree.

Having had the disease does not produce immunity against future attacks.

"If I have it, I do not want to know it," is a bad attitude to possess.

The fact that the clinical signs and symptoms clear up in a few months does not mean that the person did not have tuberculosis.

Tuberculosis frequently coexists with other systemic infections and for this reason is often overlooked.

Service to a tuberculosis patient should not cease with the arrest of the disease. He should always be impressed with the fact that he must not lose contact with his doctor and his doctor must not get lazy in his attention to these patients.

Classifying the disease does not render it of minor importance.

Anybody might pick out a moderately or far advanced case, but the physician's skill is measured by his ability to find it in the

minimal stage and his percentage of cures will increase along with his success in finding the disease while it is yet young.

The earlier the stage the more difficult the diagnosis.

The earlier the diagnosis the more successful the treatment.

Something that is never looked for is rarely ever found.

The institution of prophylaxis should be a fight against the disease and not against the person or community that has it.

All cases clinically diagnosed as tuberculosis should be reported to the public health authorities.

It is the duty of every physician to warn the patient and the public generally against fake cures of all types. Many lives have been unnecessarily sacrificed because the victims put all their trust in these "sure cure" treatments.

It has been truthfully said that the medical profession possesses enough knowledge to completely stamp out tuberculosis in a few years, but, just as truthfully, although sadly said, few of us use this information as we should.

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## SYPHILIS*†

SOME OBSERVATIONS AND CONCLUSIONS DRAWN FROM THE ADMINISTRATION OF 120,600 ANTI-SYPHILITIC TREATMENTS TO 4,560 PATIENTS

By
JARRATT P. ROBERTSON, M. D.
Birmingham, Ala.

Syphilis ranks as one of the leading causes of death. Though this is not borne out by a review of vital statistics, it is to be remembered that many individuals, dying from syphilis of special organs, congenital, cardiovascular, and central nervous system syphilis, fail to have syphilis stated as the cause of death. They are listed as dying from the pathologic condition produced by the syphilitic infection. Many of these cases are overlooked because a routine blood Wassermann is not a part of the examination of each and every patient.

In the United States, since 1900, we have been able to reduce the tuberculosis rate by two-thirds, diphtheria by nine-tenths, and that of typhoid fever to practically the vanishing point, but we have failed to show a decrease in the prevalence of syphilis. At the present, it is estimated that one individual in every ten to fifteen in the United States will, at some time, become infected with the disease.

In the Scandinavian countries, syphilis has been made a rare disease since 1920. Sweden, Norway, and Denmark, with a population equal to the State of New York, had less than 1600 cases of the disease in 1934. In the same year, New York had 50,000 cases, and Jefferson County and Birmingham, Alabama, had 9200 cases. In the United States as a whole, 43 people out of every 10,000 are constantly under treatment for syphilis. The rate in Birmingham and Jefferson County is 76 per 10,000, or almost double the average of the United States. In Macon County, Alabama, in 1934, 398 out of every 1000 Negroes had syphilis, and less than 5 per cent of these had ever received any type of treatment. The United States Public Health Service states that every year 1,143,000 individuals with syphilis come under treatment for the first time, of whom 518,000 have early syphilis, and 596,000 late or chronic syphilis. If the rate of incidence of syphilis in this country was the same as in Denmark, per 100,000 population, we would have had only 24,000 cases instead of 1,143,000 in 1934, or, if their rate was the same as ours, they would have had 32,000 cases instead of 700.

The prevalence of syphilis and the multiplicity of its complications make it a disease of vital importance to all practitioners of medicine. We have at our command diagnostic methods that are quickly and easily applied, and economically within the reach of all, and drugs that are specific in the early stages of the disease. If darkfield examinations were done on all lesions of the external genitalia, and the blood Wassermann routinely employed as a part of all examinations, regardless of the moral, social, or economic standing of the patient, then the difficulties of diagnosis would be solved. Then, and only then, shall we be able to make an inroad on what bids to become the great American disease.

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*From the Department of Syphilis, Hillman Hospital, Birmingham.

Read before the Morgan County Medical Society, Decatur, February 4, 1937.

†In three installments. The second will appear in the March number.

MODE OF INFECTION

Syphilis is classified and usually considered as being a venereal disease. Many individuals contract their infection innocently. This includes wives infected by husbands, while others are infected in utero. Infection usually occurs by direct or indirect contact with moist surfaces of a recently infected individual. Moisture must be present for transfer of the disease. The spirochete or causative organism of syphilis dies as soon as it becomes dry.

It has been shown by Brown and Pearce in experimental animals that, a few hours following infection, the spirochetes can be recovered from the regional lymph nodes, and within a week from the heart blood. This proves that the infection is generalized from the onset, spreading first by way of the lymphatics and later by the blood stream. Any attempt to abort or cure syphilis by excision or destruction of the chancre, no matter how early applied, is doomed to failure.

About three weeks following inoculation with the spirochete, there develops, at the site of the infection, a hard, indurated, simple, innocent looking ulcer known as the chancre. Simultaneously, or shortly thereafter, there appears in most cases a painless enlargement of the regional lymph nodes.

The blood is not an ideal medium for the growth of the spirochete, and they soon leave it for more favorable tissues. These special tissues are the skin, mucous membrane and eye; and the cardiovascular and central nervous systems, where the spirochetes rapidly multiply. About six weeks following the chancre, there is a second outbreak of lesions characterized by a skin eruption. Syphilis is spoken of as primary syphilis during the chancre stage and secondary syphilis during the period of the rash, both stages constituting acute or early syphilis. The mucous patches and the pustules of secondary syphilis are heavily infected with spirochetes. Following healing of the secondary rash, if treatment is not instituted, there may be a series of recurrent lesions, limited usually to the mucous membrane of the mouth, rectum, and genitalia. If untreated, they may appear and disappear from three to five years following the infection. After this period, the patient passes into a stage that varies from a few months to a life time, during which there is no outward sign of the infection and the disease can only be diagnosed by the Wassermann test. This dormant period is spoken of as latent or chronic syphilis.

During the latent or chronic period, certain reactions are taking place within the host. These may be the destructive allergic reaction of the gumma, or the slow breaking down of important structures, especially the cardiovascular and central nervous systems from the effects of a mild chronic inflammation that heals with fibrosis.

It has long been known that one out of every three males, and two out of every three females with syphilis, are unable to give any history as to the date of their infection. Moore estimates that one man out of every five, and one woman out of every three, acquire syphilis and do so without developing any lesions recognisable as early syphilis.

About one-fourth of those infected with syphilis develop a marked resistance against their infection that results in sterilization of the tissue and a spontaneous cure without treatment. Those that develop a marked secondary rash also develop a defense against involvement of the central nervous system at a later date. Most patients with clinical neurosyphilis developed little, if any, secondary lesions. This explains why the patient that is treated in the primary stage with only arsenicals in a limited amount is prone to develop neurosyphilis at a later date. His defense mechanism was destroyed by early treatment, and not being carried to a complete cure he was left without a defense against the infection. The result was early invasion of the nervous system. Only about one-fourth of all untreated syphilis develops clinical evidence of involvement of the central nervous system.

PROGNOSIS OF SYPHILIS

The term cure in syphilis has many meanings. By the term biologic cure is meant the eradication from the body of every spirochete. Symptomatic cure indicates that all signs and symptoms of the disease have disappeared, and that the patient remains well and incapable of transmitting the infection to others. Serologic cure suggests that the serologic tests of the

blood and spinal fluid have become and remain negative. It is reasonable to assume in most cases, where a biologic cure has occurred, that a symptomatic cure and a serologic cure have also occurred. Symptomatic cure often occurs without a biologic cure; that is, the patient is relieved of symptoms but still retains foci of organisms hidden deep in the tissues. Serologic cure is not identical with either of the two. The Wassermann may be negative, and the disease continue to progress. It is generally agreed that syphilis imposes an added risk of death, as compared with non-infected individuals, in the ratio of 133 to 100.

The physician who attempts to offer a prognosis from the serologic report only soon finds himself in difficulties. Clinical and pathologic progress may occur and persist in the face of negative blood and spinal fluid reports, while many patients, treated or untreated go peacefully through life to a ripe old age with a positive blood Wassermann. How much importance should be attached to this Wassermann-fast individual? Does it mean that he continues to harbor live and active spirochetes in the tissues of his body, or is it an expression of immunity that remains after all organisms have been destroyed? The answers are unknown. There is a general agreement among syphilologists that, with adequate treatment, early syphilis is curable biologically, and latent syphilis symptomatically. From a serologic standpoint, early syphilis is usually curable and latent syphilis seldom curable.

Bruusgaard, at the syphilitic clinic in Oslo, was able to reexamine 309 patients who had never been treated and whose infection varied from three to forty years. He was able also to determine the cause of death in 164 others, in 40 of whom autopsies were obtained. He found that 9.5 per cent had developed neurosyphilis; 12.8 per cent, cardiovascular syphilis; and 23.1 per cent, a serious and often fatal late lesion of syphilis. In addition, 12.1 per cent developed some latent lesion of the skin, mucosa or bones that was disfiguring but not fatal. Sixty-four and six-tenths per cent of the total number of patients passed through the period of observation without being seriously handicapped by their disease, and a spontaneous cure resulted in 27.9 per cent.

CHART 1

(From Moore)

SUMMARY OF BRUUSGAARD'S DATA AS TO ULTIMATE OUTCOME OF UNTREATED EARLY SYPHILIS

| Patients Showing At Reexamination Or Death | Per Cent of Total No. (437 Patients) |
|---|---|
| Neurosyphilis | 9.5 |
| Cardiovascular syphilis | 12.8 |
| Benign late syphilis | 12.2 |
| Latent syphilis (no clinical evidence, blood Wassermann positive) | 14.1 |
| Spontaneous "cure" (no clinical evidence, blood Wassermann negative) | 27.9 |
| Died of syphilis other than cardiovascular or central nervous system | 0.8 |
| Died of some other cause (cancer, tuberculosis, scattering) | 22.6 |

This is not intended to suggest that syphilis be allowed to pass untreated. The public health menace of the transmission of the infection to others compels us to advocate and urge early treatment, even if modern advances in therapy did not completely alter the results obtainable. Adequate treatment completely changes the picture.

In the early seronegative stage, treatment that does not include at least 20 injections of one of the arsenicals, and 30 injections of the heavy metals, is inadequate treatment. In the early seropositive stage, treatment must continue for one year after the Wassermann becomes negative. Adequate treatment in latent syphilis may vary from a few months to years. In primary seronegative and seropositive syphilis, a little treatment may be worse than none. In latent syphilis this is not true. The explanation for this lies in the fact that the patient does not develop a resistance against his infection until the secondary stage develops. When treatment is started before this stage, and stopped while foci of organisms remain in the body, the patient is left without a defense mechanism against the infection. This is especially true if the treatment has been limited to the arsenicals. The patient having been left without a defense, the organisms multiply and are redistributed over the body. Infectious, cutaneous or mucosal relapses are probably more common in inadequately treated early syphilis than in untreated syphilis. There is also grave danger that these relapses will localize in three very important structures, the central nervous system, the eye, and the

heart. There is considerable evidence to indicate that inadequate treatment of early syphilis increases the probability of the development of latent neurosyphilis, tabes, paresis and diffuse cerobrospinal syphilis, and cardiovascular syphilis. In latent syphilis, immunity and the defense mechanism are firmly established and are not impaired by inadequate treatment. The worst to expect from inadequate treatment of latent syphilis is that therapy may not halt the progress of the disease. In latent syphilis, biologic cure is impossible. Symptomatic cure, arrest, and serologic cure may be attained.

Latent syphilis may be divided into four groups: latent, benign latent, cardiovascular and central nervous system syphilis. The prognosis of latent syphilis is good, provided cardiovascular syphilis and involvement of the central nervous system have been ruled out by physical and x-ray examinations, and by spinal fluid studies. In benign latent syphilis, with gumma of the skin, mucosa, bones, and joints, the same favorable prognosis may be given in regard to life, provided that cardiovascular and central nervous system involvement are absent. Cardiovascular involvement and involvement of the central nervous system are the major causes of death from syphilis. If cardiovascular syphilis is discovered in the uncomplicated stage of aortitis, before the development of aortic insufficiency and aneurysm, the chance of symptomatic relief and permanent arrest of the progress is good. If aortic insuficiency or aneurysm has developed, the average duration of life in untreated patients is from one to two years. With treatment, the symptoms may be relieved and in many instances life prolonged for years. The prognosis of central nervous system syphilis is poor. It is always serious, as far as the persistence of disagreeable and crippling symptoms are concerned; and, in case of paresis, a grave danger to life. Central nervous system syphilis is frequently complicated by cardiovascular syphilis.

To be successful in the treatment of syphilis, one must have a basic knowledge of the biology, clinical course, and pathology of the infection. To do this, one must be well grounded in the principles of internal medicine. Even then, complex situations arise, in which all rules fail, and the answer can only be furnished by those with wide experience in the treatment of the disease. It is important to know, first, what damage the infection has caused before treatment is started. Syphilis is a disease that may involve any portion of the body, and only by a complete physical examination of the patient can this damage be determined. The examination often must include x-rays of the cardiac system and laboratory studies of the spinal fluid before it can be determined to what extent the body has been ravaged by the disease. The type of treatment will depend upon the organs involved and the extent of damage done.

A complete physical examination is also important to rule out the presence of other diseases. There are several diseases that frequently complicate the syphilitic infection. They are tuberculosis, nephritis, diabetes, hypertension and cardiovascular diseases.

Certain factors control the patient's response to treatment; viz., the patient himself, the type of organism, other associated infections, pregnancy, alcoholism, the patient's mental attitude towards his disease, his ability to tolerate and to economically afford treatment, and the drugs employed. Certain individuals inherit a more rugged constitution than others, and come from a family in which longevity is an inherited factor. Some individuals apparently inherit a greater resistance to other diseases, so why should they not inherit a greater resistance to syphilis? Race plays an important part in the infection. Involvement of the cardiovascular system occurs three to four times more frequently in the Negro than in the white race. The white race develops involvement of the central nervous system, especially tabes and paresis, much more frequently than does the Negro. The disease is milder in women than in men. This is probably due to the beneficial effect of pregnancy. If a woman becomes pregnant and contracts syphilis at the same time, the early lesions of syphilis are usually absent. She may go for years without signs of her infection, except a positive Wassermann. The routine blood Wassermann is the only means of diagnosing syphilis in a very high percentage of female patients; and should be employed as freely as urinalyses and blood pressure determinations in physical examinations; and in ev-

ery pregnancy, regardless of the social, moral, intellectual or economic standing. Neither the social register nor blue blood is a defense against syphilis. Age also influences treatment. The prognosis is vastly different in the youth of eighteen than in the adult of seventy-five. Both may contract acute syphilis, but, in the latter, life expectancy is short, and one need not fear the development of tabes, paresis and cardiovascular syphilis. In the other, with a life expectancy of fifty or sixty years, treatment must be vigorously pushed to prevent the development of these complications.

There is evidence to indicate that certain strains of syphilis may have a predilection for certain tissues of the body. Individuals infected from the same source at times develop a predominance of cardiovascular syphilis, and those from another source central nervous system syphilis. Alcohol probably has no effect on the course of syphilis except to reduce the general resistance, to produce a general irresponsibility and a tendency to be uncooperative in taking treatment.

(To be continued)

## RUPTURE OF A VENTRAL HERNIA BY TRAUMA

### A CASE REPORT

By
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And
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In reporting the following case of a ruptured ventral hernia by trauma, we are doing so because of our opinion that the condition is quite rare. We have not, however, exhausted the literature on the subject.

Mrs. L. G., aged 43, was admitted to the hospital on Oct. 26, 1936 complaining of a ruptured stomach. She gave a history of having been kicked in the abdomen by her five-year-old boy who was sleeping with her. On being aroused by her kicking offspring, she became aware that it was raining, so got out of bed to lower the windows. While up she noticed that a loop of intestine was protruding from her abdomen. This opening was from an old postoperative hernial site. A physician was called immediately, which was about 3 A. M. The wound was dressed and she was sent to the hospital, some sixty miles away, in an automobile.

*Past History*: About 14 years ago the patient had cramp-like pains in her abdomen some six weeks after the birth of a normal child. This condition became progressively worse and she remained in bed three months with fever and distention of her abdomen. She had a laparotomy under local anesthesia and a large abscess apparently was drained. The wound healed in ten weeks, leaving a ventral hernia. Four years later, and again seven years later, she had normal deliveries with increase in size of the hernia. Since that time she has been wearing a truss and the hernia has always been reducible.

*Social History*: The patient is a cotton mill worker and poorly educated. She gave a vague history regarding exact dates.

*Physical Examination on Admission to Hospital*: Temperature 99° F., pulse 80, respiration 20, blood pressure 160/90. A large obese white female of middle age lying quietly in bed. The mucous membranes were of normal color. The heart was apparently normal. The lungs were clear and resonant throughout. There was a large loop of small intestine about twelve inches long protruding from an old midline scar half way between the umbilicus and the symphysis pubis. The size of the opening in the skin was about three inches long but the loop of intestine could not be reduced. The intestine was of dark blue color but there were no areas of hemorrhage noted on the intestine or the mesentery. Examination otherwise was essentially negative. Routine urinalysis was negative except for two or three pus cells per high power field.

Under ether anesthesia, an operation was performed eight hours after rupture of the hernia. The skin and hernial sac were opened and the intestinal loop placed in the abdominal cavity. The traumatic wound of the skin was found to be six cm. in length. The hernial sac was about ten cm. in diameter with an opening at the base 5 cm. in diameter. The sac was dissected out and removed and the hernia closed in the usual manner. Postoperative recovery was uneventful and the patient was discharged on the thirteenth postoperative day.

Personal communication with the patient two months following her dismissal from the hospital revealed that she was doing her own housework and that there was no recurrence of the hernia.

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**Hysterectomy**— Formerly, the number of indications for hysterectomy was very much narrower than today, being limited mostly to malignant tumors. In a few instances benign tumors reached such proportions they became so objectionable that palliative means were sought in preference to hysterectomy to avoid the mortality. With the improvement of surgical equipment and the elevation of surgical technique, hysterectomies are performed today with about as great a guarantee to a woman's safety as her guarantee of safety by a trip with our modern means of transportation. Consequently, the indications for hysterectomy have been greatly widened and opportunity is offered for the cure of many conditions by hysterectomy that were once thought prohibitive.—*Harris —Texas State J. Med., January* '38.

# THE JOURNAL

OF THE

**Medical Association of the State of Alabama**

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue.....Montgomery, Ala.

Subscription Price.....$3.00 Per Year

February 1938


## MEDICAL PARTICIPATION IN PLANS OF MEDICAL CARE FOR ALL GROUPS OF SOCIETY

Because of the prodigious strides made by modern scientific medicine and the concomitant cost involved in the procuring of its benefits for the individual citizen, one can no longer ignore the economic aspects of the problem, when seeking to provide better medical care at all levels of society. Baldly stated, it may be said that poverty, either absolute or fractional, is the basic, underlying factor for this, as well as most of the other ills afflicting large segments of our population. Seemingly, one of society's most urgent and difficult problems is a snapping of the links in that vicious circle of poverty, disease and ignorance. In so far as the medical problems affecting the totally necessitous group are concerned, it seems clearly the responsibilty of governmental agencies to make provision for the medical care of these. The group—a large one—giving the greatest concern and presenting the most difficulties is that falling into the lower and lowest income brackets, quite incapable of financing medical and hospital emergencies alone, and known in medical parlance as the "medically indigent."

Within quite recent years, the many medical problems, such as the pneumonias, tuberculosis, the venereal diseases, maternal and child health, cancer and certain other of the chronic diseases—all having important and direct public health implications—have come prominently to the fore and are being given consideration alike by the medical profession, health workers and by governmental agencies.

At the last meeting of the American Public Health Association, held in New York City in October 1937, recognition of these trends was given consideration by the passage of the following resolution, with instructions to its Executive Board to take the necessary steps looking to the formulation of cooperative plans with the organisations mentioned:

"Resolved that a special committee of this Association shall be appointed to study the public health aspects of medical care and to cooperate with the United States Public Health Service and other Federal agencies represented in the President's Interdepartmental Committee on Health and Welfare, the American Medical Association, the American Dental Association and other appropriate bodies in extending public health work to meet modern needs, especially those occasioned by the increasing importance of chronic diseases as causes of sickness and death. Such committee shall be appointed by the Executive Board at its next regular meeting."

Following upon a recent conference held by a subcommittee of the Executive Board of the American Public Health Association with the officers and Board of Trustees of the American Medical Association, the following resolutions have been adopted by the Board of Trustees of the American Medical Association and which, when approved by the Executive Board of the American Public Health Association, should set in motion the machinery for harmonious and unified cooperation of all the organisations interested in this problem:

"Whereas, A varying number of people may at times be insufficiently supplied with needed medical service for the maintenance of health and the prevention of disease; and

"Whereas, The means of supplying medical service differ in various communities; be it

"*Resolved*, That the American Medical Association stimulate the state and county medical societies to assume leadership, securing cooperation of state and local health agencies, hospital authorities, the dental, nursing and correlated professions, welfare agencies and community chests in determining for each county in the United States the prevailing need for medical and preventive medical service where such may be insufficient or unavailable; and that such state and county medical societies develop for each county

the preferable procedure for supplying these several needs, utilizing to the fullest extent medical and health agencies now available, in accordance with the established policies of the American Medical Association. Be it further

"*Resolved,* That the Board of Trustees of the American Medical Association establish a committee to cooperate with the Bureau of Medical Economics in outlining the necessary procedures for making further studies and reports of the prevailing need for medical and preventive medical services; and that the Secretary of the American Medical Association arrange to develop such activities through the secretaries of state and county medical societies in each instance, urging the formation of special committees in each county and state where committees are not available for this purpose."

In this connection, attention is directed to an editorial appearing at page 212 of the January 15th, 1938 issue of the Journal of the American Medical Association. From this resolution and this editorial it will be seen that all state and county medical societies are being appealed to for the purpose of learning about and of more accurately defining their own particular medical needs and of giving counsel, aid and leadership in finding a solution. In so far as Alabama's problems are concerned, it is felt that our medical profession, working in unison and cooperation with its own health department, stands in strategic position to make still another contribution to the State's betterment. In the light of our past experience and training, this particular demand now being made upon us should not prove difficult.

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## TREATMENT OF ECLAMPSIA

Pointing out that eclampsia is still a major problem in obstetrics, Rucker[1] discusses the treatment of this condition, limiting his remarks "to cases of actual puerperal convulsions." The author goes on to observe that "whereas there is a general unanimity of opinion with regard to the preventive treatment, when one comes to curative treatment of eclampsia that is another matter. . . The first effective means of controlling convulsions was magnesium sulfate intravenously. Its use tremendously simplified the treatment of this condition. Since the appearance of Lazard's article in 1925, I have treated 129 consecutive cases of eclampsia with a maternal mortality of 4.65 per cent."

"In the treatment of these cases, I have not followed slavishly a routine, but have been guided by certain principles. Mine consist of four: (1) stopping the convulsions, (2) good nursing care with emphasis on rest, (3) promoting kidney activity, and (4) digitalis."

Rucker's initial dose of magnesium sulfate is 20 cc. of a 10 per cent solution and he has found it "remarkably efficient in stopping convulsions." He insists that "too much emphasis cannot be placed on rest. For this reason I am opposed to colonic irrigations, gastric lavage and purgatives. These patients are desperately ill and need all of the rest they can get."

"I feel very much better when the patient is putting out a good quantity of urine. Usually I rely on water or cream of tartar lemonade to promote kidney activity. The best way to give fluids to an eclamptic patient is by the stomach. If the patient is not awake enough to drink, one can slip a nasal tube into the stomach and pour in a pint of fluid every eight hours. When there is anuria or marked oliguria, I resort to dextrose intravenously, varying the strength according to whether there is much or little edema present." The author feels that digitalis has a definite place in the treatment of eclampsia and says that he has never seen edema of the lungs when this drug has been used. He also is convinced that "the patients who go into labor should be treated as conservatively as possible, which means in most cases episiotomy and low forceps under local anesthesia. When antepartum eclampsia is relieved and the patient is putting out a good quantity of urine, then comes up the question of terminating pregnancy. Unless one has exceptionally good control of the patient, it is unwise to let the patient leave the hospital undelivered. No eclamptic or recent eclamptic should have a general anesthetic."

Few will question the wisdom of the procedures outlined by the Richmond investigator, though some may be inclined to believe that he overvalues the use of digitalis. The prevention and treatment of eclampsia is one of the triumphs of latter-day medicine and it is by means of such studies as those of Rucker that the ravages of this condition are steadily being lessened.

1. Rucker, Pierce: The Treatment of Eclampsia, J. A. M. A. 109: 1087 (Oct. 2) 1937.

# THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

## MEDICAL COOPERATION WITH FEDERAL PLANS FOR REHABILITATING RURAL FAMILIES FALLING INTO THE LOWEST INCOME BRACKETS

Contributed by the State Board of Censors

The Federal Government, through the Farm Security Administration, is attempting, throughout the United States, to extend a helping and educative hand to a large, and by no means negligible, segment of our population—the low-income, barely subsisting, rural family. Unfortunately, of these the whole South—and certainly Alabama—has more than its wholesome share. Of Alabama's nearly 3,000,000 population 37 per cent is coloured and 70 per cent is still classified as rural. The present undertaking on the Federal Government's part embraces more than 10,000 such families in Alabama scattered throughout the State, with each family averaging a fraction over six members per family. To the heads of these families small loans will be made, bearing an interest rate of 5 per cent and secured by crop liens and mortgages on live stock. From such an approach there seems reasonable hope that a goodly portion of these—the more thrifty and intelligent ones, at least—will stage a come-back and thus become assets rather than liabilities to their respective communities. One of the important factors in any scheme seeking human rehabilitation and betterment is financial provision for medical services to care for unpredictable and catastrophic illness.

In the present approach, the Federal Government proposes to set aside a small portion of the loan made to be applied exclusively for the purpose of procuring at least a measure of security against sickness amongst this group. The Association's Committee on Public Relations gave this entire matter careful consideration and study, meeting with representatives of the Farm Security Administration and with the State Board of Censors; and in the Board's views (Exhibit A), set forth below and furnished all county medical societies, effort has been made to incorporate the salient facts transmitted to it through this Committee. Accompanying the material furnished the county medical societies, the "ten points" of ethical principles (Exhibit B) adopted by the House of Delegates in 1934, in working out contractual relations with any group, have also been included. It is felt that a study of these, together with the present ordinances of the Association governing contracts, to be found in the compend, will furnish suitable guides to county medical societies, desiring to work out plans for rendering medical services to this low-income group:

To Presidents and Secretaries of County Medical Societies and Chairmen of County Boards of Censors:

Gentlemen:

The State Board of Censors directs that the officers of all county medical societies be furnished a copy of the recent action taken by it relative to the cooperation of the organised medical profession of the State with the Farm Security Administration of the Federal Government in an effort to rehabilitate selected, substandard farm families scattered throughout this State—at present numbering more than 10,000.

Representatives of the Farm Security Administration plan to have personal interviews with the Board of Censors and the County Medical Society of each county in order to discuss and arrange the necessary details of the proposed plan.

The expressions of the State Board of Censors, herein contained, are purposely broad and declaratory only of fundamental, basic and ethical principles upon which should rest any scheme for the dispensing of medical and health services. The Board feels that the organised profession within each county may be confidently relied upon to provide the medical leadership and cooperation necessary to at least ameliorate an existing, widespread situation, which from every viewpoint, if not deplorable, is most unsatisfactory.

Respectfully yours,
J. N. Baker, M. D.
State Health Officer, and Secretary
State Board of Censors.

January 15, 1938.

Exhibit A

The Expression of the Board

The State Board of Censors of The Medical Association of the State of Alabama, at a meeting held in Montgomery on Jauary 12th, 1938, received and gave consideration to a report, transmitted to it by the Committee on Public Relations of the

Association, dealing with the problem of health services to certain substandard, rural, farm groups being sponsored and, at least in part, financed by the Federal Government.

At this meeting were also present members of the Public Relations Committee and certain representatives of the Farm Security Administration of the Federal Government, who had previously met and given consideration to the questions involved in the Committee's report to the Board.

Based upon all of the facts and evidence presented to it at this meeting; based upon the unquestioned mutations now going on in our social structure, industrial and agricultural, urban, and rural; based upon a careful study of the existing ordinances of this Association relating to contracts dealing with medical, surgical and hospital services; and based upon the history, experience and evolution of these ordinances within the Association, the Board begs to submit the following:

1. That its appreciation and thanks be extended to (a) the Association's Committee on Public Relations for the report submitted and for the time and labour expended in preparing this report, and (b) to the representatives of the Farm Security Administration for the interest shown, and the method of approach chosen by them, in their efforts to improve the health conditions of the low-income groups now being sponsored by them in this State.

2. That the Board feels it is expressing the views of the entire medical profession of the State in saying that there is real need for making more generally available medical and hospital services for the totally indigent, the medically indigent and those groups with incomes at or below the subsistence level.

3. That the furnishing of humane medical care for the totally indigent group is a responsibility of governmental agencies which should be stimulated and aided by the medical profession to make the necessary and proper provisions for this segment of society.

4. That for that large group of our population falling into the lower subsistence levels, both urban and rural, and for which a medical emergency is likely to prove a financial catastrophe, the medical profession should give encouragement to such plans as it deems sound, looking to the end of improving living and health conditions amongst these groups, raising their economic status and making of them more useful citizens.

5. That in the existing ordinances of our Association dealing with these problems—some of them now nearly 50 years old—the principle of preparing for unpredictable medical, surgical and hospital emergencies, on a prepayment weekly, monthly or yearly basis, has been recognised and sanctioned, as evidenced by those sections dealing with industry, educational institutions, and hospital protection.

6. That the Board, reposing confidence in the integrity and uprightness of the members of the medical profession and in their willingness to fully cooperate in all matters for the good of the common weal, approves and encourages cooperation on the part of the medical profession of this State with the Federal Government in providing improved health services to the groups sponsored and financially aided by it.

7. That the establishment by the Federal Government of a depository for the receiving and disbursing of monies contributed by members of this particular group on a prepayment basis, and to be applied solely for the purposes of health services, appears to be a worthy beginning effort, although admittedly experimental and unsupported by sufficient actuarial data, and during such exploratory stage, is entitled to the approval of the medical profession and of this Board.

8. That, wherever in the State, such a plan may now be, or hereafter become, operative, the principles of free choice of physician and the principle of individual relationship of patient to physician should be preserved.

9. That, in whatever county the Federal Government may decide to sponsor such a project, the County Board of Censors of the County Medical Society should serve as a mediating or censoring body in all questions arising of a professional or ethical nature.

## Exhibit B

### Ten Principles of the House of Delegates of the American Medical Association

1. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

2. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

3. Patients must have absolute freedom to choose a legally qualified Doctor of Medicine who will serve them from among all those qualified to practice and who are willing to give service.

4. The method of giving the service must retain a permanent confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

5. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

6. However the cost of medical service must be distributed, the immediate cost should be borne by the patient, if able to pay, at the time the service is rendered.

7. Medical service must have no connection with any cash benefits.

8. Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

9. Systems for the relief of low income classes

should be limited strictly to those below the "comfort level" standard of incomes.

10. There should be no restrictions by non-medical groups on treatment or prescribing unless formulated and enforced by the organized medical profession.

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# *Committee Contributions*

## PUBLIC RELATIONS

### Proof Of The Pudding

(From N. Y. State J. Med., Dec. 15, '37)

The best argument for or against any system is how it works. No amount of theoretical "shoulds" can gainsay an actual "doesn't." Judged by the strict rule of results, the principle of free choice and free competition among physicians has conclusively demonstrated its superiority to the project-doctor system in the United States Works Progress Administration for New York City.

Prior to March 1937, the WPA in Greater New York employed its own physicians for workmen injured in its service. At that time, at the urging of organized medicine, it switched to the panel system in force for workmen's compensation in this state. Results were immediate and striking.

At the end of three months, John F. Overend, the State Compensation Officer for the WPA, found that the operating costs of his department had dropped almost eighteen thousand dollars a month. The net saving to the Federal Government, allowing for the heavier burden upon the federal hospitals as a result of the panel system, was over nine thousand dollars monthly.

"A matter that is probably of more importance than the economics involved is the fact that injured employees are receiving better medical treatment than heretofore. The average panel physician is more skillful and experienced; he manifests a greater interest and care in his patients, the injured employee has more confidence in his doctor and hence follows instructions, thereby promoting his recovery. In all respects the panel system has proved itself more satisfactory than the project-doctor system."

The passage of time has confirmed Mr. Overend's conclusions. After six months, Mr. Brehon Somervell of the Works Progress Administration in New York City also reported that better treatment was being rendered under the panel system at lower cost. The workers are highly satisfied with the new arrangement. Medical abuses are at a minimum.

Part of the credit for these splendid results must undoubtedly go to the medical and administrative heads of the WPA for their intelligent cooperation with organized medicine. Both of the executives mentioned, as well as Dr. Philip MacGuire, the Medical Director, have a genuine understanding of the factors involved in good medical service and an unusual ability to work in harness with unofficial bodies.

Above all, however, the results testify to the superiority of independent, competitive medical practice over a bureaucratic monopoly.

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## Medical Societies

### POWER AND RIGHT TO ENFORCE BY-LAWS

(From N. Y. State J. Med., Dec. 1, '37)

An interesting case involving the power which a medical society may exercise over the conduct of its members recently was decided by the highest Court of one of the States on the Pacific coast.*

The action was brought against the K. County Medical Society, a constituent of the State Medical Society in that jurisdiction which in turn was one of the constituent societies of the American Medical Association. The purpose of the suit was an attempt to recover damages from the defendant Society, and the codefendants K. County Medical Service Corporation, and certain officers and members of the Society and of the Corporation, upon charges that they had induced Doctors S. and M., of the County Society, to breach a contract entered into between them and the plaintiffs.

The action was disposed of in the lower Court, and the appeal was determined upon a record which took into consideration only the allegations made by the plaintiffs. The defendants addressed an application in the nature of a demurrer to the plaintiffs' charges in order to test the case upon the theory that insufficient facts to constitute a cause of action had been alleged, assuming

*Porter v. Medical Society, 58 Pac. (2nd) 367.

the truth of all of the plaintiff's charges.

The fact situation, therefore, which will be summarized in some detail, is taken from the complaint, and may not conform in all respects to the facts that would have developed had the defendants in the case ever been called upon to give their version of what had transpired.

The K. County Medical Society embraced nearly all the physicians practicing in the locality, and, according to the charges, the Society had created for its members a virtual monopoly of the medical profession, controlling fee schedules and dominating the professional practice of its members, and in various ways controlling their conduct by threats of discipline or expulsion.

It seems that two physicians, S. and M., members of the Society, had about twelve years before organized what was called the Associated Physicians Clinic, and had engaged in group medical contract practice with various large business firms. They had undertaken to furnish medical and surgical care and hospitalization to employees of such firms at one dollar per month per capita. The plaintiff, P., it seems, had entered into a contract with Drs. S. and M. whereby he was employed as manager of their contract department. His duties were to secure new contracts, to collect fees, and generally manage the business end of the venture. P. claimed that the contract was a profitable one for him and that it was intended to continue for an unlimited term.

The defendants at all times had been opposed to independent clinics of the type so conducted, and it was claimed were so opposed to such contract practice as "it tended to injure the monopoly enjoyed by the society and its members in the medical profession and practice, and tended to deprive members of the society of much of their exorbitant and excessive fee practice." It was claimed that about two years before the suit was started defendants began a concerted movement to destroy such contract practice, with the result that Drs. S. and M., subsequent to the action taken by the defendants, committed in furtherance of a conspiracy, abandoned their practice and in so doing were obliged to breach their contract with P.

It seems that the Society had organized its own group clinic under the corporate name of K. County Medical Service Corporation. The charges alleged that such clinic was identical to the Associated Physicians Clinic with which P. was connected. It was also claimed that the defendants had induced an able and trusted employee who had worked for the Associated Physicians Clinic to desert the Clinic and work for the Society's corporation.

The Society had during its alleged campaign against independent clinics passed an amendment to its by-laws tightening up on the matter of discipline of members. The by-law in question, after stating various routine grounds of discipline, provided that a member "who shall engage in contract practice unless the same shall previously have been authorized by the Board of Trustees of the Society, or who as physician or surgeon shall serve on the staff of, or shall perform work in any institution or group or organization unless such services or work shall previously have been authorized by the Board of Trustees of this Society, or who as physician or surgeon shall serve on the staff of, or shall perform work in any institution or group or organization unless such services or work shall previously have been authorized by the Board of Trustees of this Society shall be liable to censure, suspension or expulsion."

Shortly after the passage of the said amended by-law, it seems that the Society threatened to expel Drs. S. and M. unless they abandoned their contract practice including their contract with P. and demanded that they should turn over to the Society and its subsidiary clinic all their books and records relating to their practice as the Associated Physicians Clinic. The said physicians at first refused to comply. Shortly a certain Dr. C., who was a leading member of the Society, (named as an individual defendant in the action) filed written charges signed by some thirty other members against Drs. S. and M. accusing them of unethical conduct in violation of the by-law referred to and seeking their expulsion from the Society.

Shortly after the charges were so filed, S. and M. abandoned their agreement with P. and gave up their contract practice.

Both the lower Court and the Appellate ruled that the foregoing failed to state a cause of action against the defendants. In affirming the judgment of dismissal, the Appellate Court said in its opinion:

The constitution, charter and by-laws of the medical society constitute a contract between the members of the society which the courts will enforce if not immoral or contrary to public policy or the law of the land. That is to say, Doctors S. and M., under their contract with the medical society, were required to obey the by-laws of the society or by breach thereof subject themselves to the penalty of suspension or expulsion from the society. It is not at all material how selfish or unselfish the objects of the medical sociey are if same are legitimate. It cannot be successfully contended that the medical society did not have the right to adopt the by-law in question. Whether such by-law or rule was just, reasonable or wise is a question of policy which concerns only the medical society and its members. The medical society, in the enforcement of its by-laws for the direct purpose of benefit to itself and to its members, is not answerable for damage incidentally resulting to a third person. So long as one remains a member of the medical society, such member can be compelled under his contract with the society to obey the laws, rules and regulations of the society or suffer the penalty of fine, suspension or expulsion. . . .

The weight of authority is to the effect that in pursuing its legitimate objects an association has the right to coerce a member by fine, suspension or expulsion, and the association will not, nor will its members, be liable in damages to those who may be directly or indirectly injured by such efforts. So long as a member remains in the association, he is subject to the coercive effect of a penalty exacted for breach of a by-law of the association. If he does not desire to abide by the obligations of his contract of membership, he may abandon his membership. No right of appellants, who were nonmembers, was invaded by the respondent medical society when it established its code of ethics and insisted upon compliance therewith through threat of expulsion of an offending member. We agree with counsel for respondents that, viewed as an association engaged in promoting the interests of its membership, the enforcement of solidarity by threat of expulsion of one of its own members creates no cause of action for the incidental damage resulting to an employee of that member who has a contract of employment "for an unlimited term."

It is interesting to note that in so ruling the Court cited a number of cases, as authorities for its decision, which dealt with the powers enjoyed by labor unions to control the actions of their members.

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## A Medical Famine In The Great Open Spaces?

(From N. Y. State J. Med., Dec. 1, '37)

"Do you have any doctors around here?" asked a traveler in a remote wilderness region of the Ozarks.

"Hell, no, we don't want no doctors," replied the bewhiskered native, shifting his tobacco from one corner of his mouth to the other.

"What do you do when somebody is sick?" said the traveler.

"We give him a good drink of whiskey."

"Suppose that doesn't do him any good; what then?"

"Then we give him another drink."

"And what if that doesn't help him?"

"We naturally give him another."

"And if that doesn't make him better?"

"Stranger, if a man is so sick that three drinks of whisky don't do him no good, then nobody can't do nothing for him."

This simple and direct medical philosophy, which requires no long years of study in medical school, and no messing and fussing around with test-tubes in a laboratory, prevails in some areas where the population is too sparse to support regular physicians. But it has been seized upon by our eloquent socializers who would immediately have the government organize a rural medical service to care for these neglected denizens of what are sometimes styled the sticks.

### SCRUTINY SHOWS UP THE FACTS

Every doctor is naturally in full sympathy with the belief that every sick person in the United States should have the benefit of medical care; but it also happens that every doctor is of a scientific turn of mind, so the level-headed men of the Bureau of Medical Economics of the A.M.A. have taken the trouble to explore this situation with the same care that the surgeon takes to find the infection that perils the life of his patient.

It turns out that there are 241 counties scattered through thirty states which had 2,000 or more persons for each physican in 1936. These are the counties, then, if any, that would need a relief corps of government doctors. The ratio of one doctor to 2,000 population was used because the Committee of Hygiene of the League of Nations set this figure in 1931 as the minimum for efficient rural medical service. A little investigation, however, makes one wonder if these counties are so badly off, after all. The boasted British system, it seems, permits a physician to have 2,500 persons on his "panel," besides others for whom he cares as private patients; and in Sweden, with its special regulations for rural medical care, the average number of persons per physician for the entire country is 2,660. Indeed, it appears that "in no European

country having any considerable rural population with systems of state medicine, compulsory insurance or special provisions for rural districts has this ratio of 2,000 persons per physician been reached for a majority of the rural sections."

### PLENTY OF DOCTORS WITHIN REACH

We must not forget, either, that every such county is surrounded by other counties, which may have plenty of doctors, so that in these days of telephones, automobiles and splendid roads, it may have an entirely adequate medical service. Take the thirteen counties in Florida with more than 2,000 people per physician. Neighboring counties within fifty miles have thirty-four hospitals with 2,633 beds, of which only 1,433 were occupied in 1935. Certainly no one can complain of a scarcity of medical facilities there. In Kansas the six counties with few resident doctors do not in any case border on each other, so that all have other well-supplied counties in easy reach, and, we find, the hospitals in the adjoining counties were less than half filled in 1935. To send more doctors into these counties might merely be taking the bread from the mouths of doctors already there, without bettering the local medical situation in the least.

People, too, who inhabit the back districts are often backward in their medical customs and beliefs. We are reminded by the Bureau of Medical Economics that an ignorant, illiterate, and socially backward community will prefer patent medicines, home remedies, witch doctors, quacks, or cultists even when its residents recognize that they are sick. Sometimes they accept sickness as fate and do nothing about it—whole sections of the population had to be educated to the fact that they were suffering from hookworm disease before they saw any need of medical service. Ignorant mothers often summon untrained local midwives in preference to trained obstetricians, and doctors in the counties that were studied report that patients wait to call a qualified physican until they have exhausted the resources of nostrum and home-made medication.

### AMERICA LEADS THE WORLD IN MEDICAL CARE

Secretaries of state medical societies are unanimous in reporting that no complaints as to lack of medical service and practically no requests for additional physicians have been received from these counties supposed to be suffering from a medical famine. Present indications are that these counties are getting all the medical care they demand. If doctors are scarce in "bush" regions, we must remember that a great general movement of the people from the country to the city has been in progress during the past fifty years, and it is only natural and inevitable that the doctors should move with the population.

Despite all this, however, there is no sign that rural health has been neglected, and there has been no time in recent decades when there were not more physicians per unit of population in the United States—and in both urban and rural districts—than in any other country on the globe. It is a well-known fact that many doctors who have moved from country locations to nearby cities have kept all their rural patients, and, thanks to the automobile and good roads, can take as good care of them as before, or even better. Sometimes the doctor's prestige and practice in the countryside are increased by his new city address and hospital connections.

### ACID TEST TELLS

An acid test of medical efficiency is the death rate, and if these rural counties are suffering so frightfully for lack of medical care, then it should show up clearly in the mortality statistics. The interesting fact, however, as pointed out by the Bureau of Medical Economics, is that these counties have lower death rates than their states at large. In Alabama, for instance, "the recorded rate is actually lower in the majority of these counties than in the state as a whole," and "if there is any lack of medical service in these counties, it is not reflected in the death rate." In Florida only two of the thirteen counties studied have a death rate higher than the state average, and in nine the rate is below the rural state average. State after state show the same thing. In Kansas the average death rate is 10.3, while the rates of the six counties suffering a dearth of doctors are 7.4, 3.8, 4.5, 4.9, 6.6, and 5 per 1000.

Many others might be cited. The simplest explanation seems to be that the old-time law of supply and demand is here working before our eyes—the doctors go

where they are needed most, in city and town, where the incidence of morbidity and mortality is heaviest, and do not stay where they are least needed, in regions where the people live and work in the open air and sunshine, eat plain food, go to bed early, and retain their health and vigor.

A STORY FROM MEXICO

The experiment of providing state medicine for the rural population is being tried in Mexico, we learn from an interesting article in the *Virginia Medical Monthly*. In Mexico, it seems, ninety per cent of the population live in the country, while ninety per cent of the doctors are to be found in the cities, so the government is providing medical service for the rural population. Several different plans are in force in different parts of the country. As a large part of the population are of Indian or mixed blood, the doctors encounter some curious situations.

A young doctor who was sent to a village in southern Mexico danced with a betrothed Indian girl with flashing eyes and dazzling smile. A big row ensued, as the jealousy of her man was roused, and the engagement was broken off. In the emotional upset that followed, we are told, the girl tried to kill herself, but only fractured her femur and pelvis. Under government medical and surgical treatment the fractures healed, but she failed to walk. Treatment for her hysteria was of no avail.

Finally the family called in the village medicine man, who danced about the girl's bed, uttered his mystic incantations, and ended by making a bonfire of the young doctor's undershirt. He then told the girl to rise and walk, which she did, completely cured. If the plan of the medical reformers in this country is to send our promising young M. D.'s out to compete with the local quacks, cultists and voodoo performers of the wilder regions, perhaps it would be well to include in each kit a dozen spare undershirts.

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POLITICAL MANIPULATIONS ARE ENDANGERING THE VERY EXISTENCE OF OLD AGE SECURITY

(From Illinois M. J., Oct. '37)

Social Security, to which Abraham Epstein, since 1927 executive director for the American Association for Social Security, says: "We have been converted overnight and which is the newest of all new industries in this new country of new industries, is, according to Epstein himself, "being killed with kindness." Let us hope Mr. Epstein is correct about the slaughter.

Says Mr. Epstein, writing in *Harper's Magazine*: *"Social Security, Flower of the New Deal, is here."*

The American weakness for panaceas is Mr. Epstein's conclusion for this sudden national acceptance of a cure-all for poverty in the future if not in the present nor in the past. He blames also our national appetite for advertising slogans and our everlasting Barnum complex. Mr. Epstein connotes that the American citizen felt the depression more keenly than did any other nation on earth because of our "Higher standard of Living"; which is exactly what all the socialists and theorists fail to take into account when they try to force upon American citizens the crutches for a high standard (?) of living that Europe is adopting with pretty poor results.

The depression was so drastic, it so completely undermined everything that through the years America had come to regard as *security* that in the search for salvation the poor deluded population turned to ineffectual schemes that do nothing more than offer a relief that is worse than the disease. This is like the parched man who slakes his thirst at a poisoned well or fever-laden stream. In his extremity, he grasps at the first seeming succor.

In December, 1935, in *Harpers*, Epstein wrote a most able article in which he told of the "implications and limitations of the Social Security Act." Still quoting him directly it is interesting to note that he says of his more recent contribution, the article remarking that we are killing with kindness the old age security act, he says in part: "That first article showed that instead of seeking greater security by *increasing the purchasing power of the masses as all sound social insurance programs have done the insurance features of our Act tend to aggravate insecurity by placing practically the entire financial burden upon the poorest sectors of the population.* Instead of diverting some portion of the income of the higher brackets which is not used for direct consumption into mass purchasing power, our insurance program merely sets up a system which *obliges the*

*poor to share their poverty in order to sustain the impoverished.* In taxing only the wage-earners and their employers, the Act not only relieves the wealthy from their share of the social burden of indigency which, through the poor laws, *they have helped to carry for over* 300 *years,* but makes possible only scant protection to the needy. It ignores the ten million present unemployed and offers little help to the future unemployed. Furthermore the heavy direct withdrawals from workers' wages can only result in a further reduction of mass purchasing power. Payroll taxes will be passed on to the consumers in the form of increased living costs and will intensify the displacement of men by machines in the attempt to reduce labor costs."

Epstein pursues this theme further remarking that a few years ago no one would have believed that the United States today would be thus far on the road to "Social Security." He cites that the first annual report of the Social Security Board showed that in the first eleven months of its existence about a million and a half individuals were aided (about two-thirds of these aged persons) at a cost to the Federal Government alone of $109,000,000. He does not say what percentage of these funds was eaten up by political job-holders. All but seven States received Federal funds under the Act and over twenty-two million workers were registered for their old age insurance accounts. He adds, too, that by the end of 1936 unemployment insurance laws enacted in 35 States and the District of Columbia covered about eighteen million workers.

Epstein has figured out that the Social Security Act covers ten different insurance and welfare plans based on three different philosophies of governmental operation. Except in Wisconsin, unemployment insurance benefits will not be paid before 1938 and the old age contributory benefits do not begin until 1942.

Since the Social Security Act began to function here is the difference in one instance, but one which is typical.

Up until the Social Security Act was signed on August 14, 1935, total expenditures for that year in old age pensions from twenty-seven states amounted to something like $66,000,000. At the end of 1936, forty states, the District of Columbia and Hawaii, had increased the number of pensioners from 403,762 persons in 1935 to 1,107,479 persons in 1936 and the pension ante had jumped to almost $155,000,000 not including $600,000 more paid out in such pensions by Arizona that had an argument with the government over its plan for such aid. *In other words, in one year the number of pensioners practically trebled, the expenditures increased two and one-half times, and the number of pension paying states was increased by something less than fifty per cent.*

Federal aid was supposed to equalize old age assistance throughout the country but figures do not reveal that it has achieved this end. As a matter of fact the reverse seems true. In December, 1935, the amounts of the pensions ranged from $4.35 to $23.15 per month. In December, 1936, the gamut ran from $3.92 to $31.96 per month according to whether a man lived in Mississippi or California. Colorado paid an average pension of $27.65 per month and Arkansas only $9.01. Even counties in the same state fell out of plumb. Thomas Co., Nebraska, paid average pensions of $7.38 per month and Gosper Co., Neb., pensions of $21.35 per month. Everywhere these same divergences maintain. They are noted in age, class and number of pensioners as against the comparative wealth and population of the various states and everywhere the difference is discouraging and disproportionate. All of which goes to show that the civilian old age pension list is behaving like all other of our pension lists. Or to quote Epstein:

"The striking divergence in the number of pensioners in the different states is simply due to the fact that our old age security system is developing in the traditionally 'American Way' . . . it is in line with our traditional jobholding philosophy—'To the victor belongs the spoils' which has characterized practically every administration since Jackson. In other words it is reverting to our typical spendthrift and generous way of using pension systems for the political good they do. . . Significantly the greatest number of pension bills are in the States which already have the most liberal laws. Legislators everywhere are outbidding one another in order to appease the appetite of organized pension blocs."

Mr. Epstein cites at length and with interest the flagrant political manipulation of

the pension plans in Ohio and Colorado. In Ohio the monthly State expenditures increased in a year (*and after an election*) from a million a month to almost $2,400,000. In Colorado there was a thirty-six per cent increase in one single month or a jump from $460,325 to $628,312. Colorado has amended its Constitution so that the minimum old age pension is $45 per month and the maximum as "blue sky" as many a mining stock has been. Texas has the most liberal pension act in the country—and on the first day of its operation 40,000 were pensioned. That was only 12,000 less than New York State had pensioned in five years. Oklahoma's superlatively large number of pensioners astonishes even the state census takers. Kentucky and Illinois have both become pension conscious, since, as Epstein remarks, Federal aid was up before the public in an election year. "Illinois," says he, "which for fifteen years had withstood pressure for old age pensions enacted a law in 1935 when Federal aid became imminent. Pension payments delayed for many months were rushed as soon as Federal cash enabled the State *administration to appoint some* 400 *state investigators* during the campaign to "assist local officials," although by law they were supposed to be appointed by county boards. Similar events occurred in many other States. . . Indeed the pressures of 1936 were not for the realization of the fundamental aims of the Social Security Act but simply to boost pensions in the traditional American manner."

And again: "The political manipulations are indeed endangering the very existence of old age security. As the facts are revealed the universal approval which greeted earlier and well-administrated laws is being succeeded by nationwide protest against the entire pension movement. . . While there is no longer any question of the need for self-respecting assistance for the dependent aged it is also plain that we cannot hope to operate a system of old age security in the traditional American fashion."

Mr. Epstein would seem to feel that what is typical of the fashion in which old age pensions have been handled is typical of the management of other current relief projects. Relief and aid and all the other New Deal-isms are well called a political pie counter. And political pie comes from taxes and taxes alone. The lesson of pre-Revolutionary France is forgotten by post-Revolutionary America. God grant we are not now again "pre-Revolutionary"!

Epstein says that Social Security legislation of a sane content is threatened on two fronts. "On the one side are the interests which are against the idea altogether, and on the other the political fraternity that see in pensions and social insurance the source of another slush fund."

He forgets the third front—the individual who is still an old-fashioned American in his heart and in his ideals and who believes that the doctrines of *self-reliance* and honest politics that built up the nation may yet repair and rebuild it, but Epstein is right when he says:

"Prosperity and pensions are not synonymous."

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### What Socialized Systems Of Medicine Actually Do To The Patient And The Physician As Told By Eyewitnesses Chafing Under The Burden

The voice of experience knows that of which it speaks. So it will not be amiss for even partial advocates of Senator James Hamilton Lewis' purposed federalization of physicians to hearken to a few eye-witness' statements as to how government control of medicine works out.

From American physicians studying medicine in various European capitals came the direct reports, the *Eyewitness Statements* of current results of this compulsory health insurance which so many enemies of American ideals are determined to foist upon the American public. Embodied in an editorial published in the July issue of *"Ars Medici,"* official journal of The American Medical Association of Vienna, we consider the editorial worthy of republication here.

The shock experienced when we heard the statement of J. Hamilton Lewis at the A. M. A. in Atlantic City was not fully ameliorated when we learned that Mr. Lewis was not officially representing the government because we, of the A. M. A. of Vienna, feel that his speech was a trial-balloon.

No one is in a better position to observe and judge socialized medicine than doctors who are studying in Europe—in the very midst of this institution. There are physicians among us who have studied in all parts of the world and have had the opportunity to study socialized medicine from all angles as well as elaborately discuss it with authorities. In Austria nearly 90 per cent of the population are members of official or private sick-as-

surance companies. As a result private practice has nearly ceased to exist. The compulsory state-insurance alone comprises 2,000,000 persons, that is about one-third of the total population. The efforts of the Austrian physicians to limit state-insurance to a certain higher income group ($160 a month) yielded no result so that a situation remains allowing directors of industrial enterprises, banks, the highest state employees and their families, etc., medical treatment, medicaments, operations, medicinal baths, health resorts, etc., nearly free of charge. The insurances cover a maximum income of $80 monthly regardless of the actual income, so that an income of $400 leaves $320, which is not considered by this method of insurance. 20¼ per cent of the income of employees and workers is deducted for social insurance, that means an income of nearly $100,000,000 for the company which insures the merchant-manufacturer-professional group alone.

### ADVANTAGES ENUMERATED

Advantages: Medical help is assured along with medicaments, operations, hospital fees, bandages, apparatus, spectacles, care of teeth, baths, recovery homes, etc., and in case of inability, financial help for a certain time, i. e., the above insured, from the 4th week of illness up to one year, gets a compensation, and if ill longer, he is declared an invalid and receives a pension (Rente), which he of course again loses on getting well.

### MANY BAD FEATURES LISTED

Disadvantages: A new element has been interposed between patient and physician, the bureaucratism, which destroys the essential factor in the relationship—the confidence. The insureds have the tendency to get as much as possible for the money they regularly pay. A physician has to work not only in the interest of the patient (his essential duty) but also to protect the interests of his company. The sick fund creates unwillingness to work and the old truth, "Cure is accelerated by the will to work and earn again," goes astray. The desire for recovery is undermined by the possibility of getting money without working. In periods of prosperity the number of the disabled decreases and, conversely, during a crisis, it rises enormously. The patient prefers the physician who makes the least difficulties for him in his effort to get support without working, i. e., confirms his disability. This is best realized in an incident which occurred a few years ago in Germany. The government ordered a re-examination when the number of the disabled had risen to 1,250,000; before the examination, 400,000 of these declared themselves able-bodied and another 300,000 of the re-examined were found to be able-bodied. Socialized recovery and accident stations are breeding-places for malingerers. Socialized medicine is a fine thing—in prosperous times for a community free of laziness, lying and egotism.

The actually sick person becomes prejudiced for numerous reasons: The sick fund physician is always in a hurry; some of them have to handle 40-50 patients in two to three office hours (how many cancers are overlooked!) and visit several dozens in the morning and evening. Payment is bad: about 22 cents for an office consultation, 36 cents for a visit to the patient, of which again after deducting street-car fare, only 22 cents remain. Of course this "big business' of a handful of the chosen allows the vast majority a small number of patients monthly, which makes an income of about $100 a month, as the reader can well judge, impossible. Most of them earn only $40-$60. The sick funds spend for physicians only 12 per cent of the money taken from the insured; that is not more than for their own management; some spend almost as much for the administration, as for the doctors and medicaments. In order to enforce economy and protect themselves from "overhealing" (Uberarztung), the sick funds allow only an average of 2½ consultations, 1 visit and 46 cents for medicines per case monthly. Therefore, if the physician has had too many simulants and almost-sick cases (Bagatelle-falle) in the current month, he has no more paid-time and paid-medicaments, i. e., time and medicaments which the insurance company covers for serious cases. In times of epidemics a 5-8 per cent increase in the number of consultations and visits is allowed. All this results in mistrust, being the leading feature in the relationship of sick fund—physician—patient. In order to protect themselves from the reproach of over-healing, the physicians are forced to turn over to the hospital even patients who could easily be treated at home, viz.: pneumonia, pleurisy, which in turn implies higher costs, but leaves the doctor room for other patients and medicaments. Visits in excess of the prescribed maximum are not paid for by the sick fund, and the difference between the permitted maximum and the actual expenses for medicaments is then deducted from the physician's bill so that the physician is often forced to pay for the drugs of his serious cases. It is therefore clear that only the simplest and cheapest drugs are prescribed. It is also clear that the patient, knowing these conditions, now mistrusts the physician and the efficacy of the prescription, so that the very important psychological factor in the prescription is lost. It is interesting to note that, owing to the above, the sick fund of the civil employees is enabled to earn money on the very sickness of the insured. Since the doctor is not paid for visits in excess of the prescribed minimum, this company, whose form of insurance requires that every patient pay 10 cents to the fund for a consultation, 16 cents for a visit of the doctor, 30 cents for a specialist's consultation, regardless of how often the insured has had to resort to these in a month, has an income through the deduction of the doctor's fees for plus-visits.

### DOCTOR BECOMES POLICEMAN

The physician tends to hold the patient as long as possible, within the limit of the maximum allowed, before sending him to a specialist or an institute. This is only possible with the permission of the chief physician of the sick fund, who protects only the interests of his institution and thus grants as litle as possible, even if he has to go against the practitioner's advice—he's a policeman rather than a physician. And as pull generally plays an important role in every institution it is not surprising to hear from general practitioners that they are unable to bring really needy patients to one of the most luxuriant homes of the sick fund or health-re-

sorts. The perennial answer is "all places are occupied."

Almost all sick funds have their own outpatient department for physical therapy, venereal diseases, gynecology, pediatrics, dentistry, etc., where a wholesale treatment is discharged upon the masses of the waiting patients. The corresponding private institute and specialist therefore stand helplessly by with little or nothing to do. Thus we find distress and discontent on the part of the insured and despair on the part of the physicians, whose very existence is endangered. The physicians cannot help themselves, for, in consequence of their pauperization, their social organization is of no value. They have become the Chinese coolies of the sick fund companies, and the most deplorable thing is the relative loss of their reputations and the confidence of their clients. The specialists fare even worse, since they cannot get any patients directly but only on recommendation of the practitioner to the chief physician. A few days ago a renowned Viennese professor told me after his office hours, "*Hodie nemo fuit!*" (no one was here today). I quote only a few figures of the latest schedule to show how poorly they get paid: first consultation, 80 cents; the following ones, 50 cents; appendectomy, $24; treatment of dental root, $1.00; only pathological births are paid for. Not paying for a normal birth induces the physician at times applying such means as forceps, only in order to get a fee. The surgeon only treats minor surgical cases, since major cases are treated free in the hospitals.

Wherever the State goes beyond its natural boundaries, vast disadvantages result for the community.

WHAT OTHERS THINK

Dr. E. Liek says in his book, Der Arzt und seine Sendung (The Physician and His Mission), "Nothing has fanned the embitterment and hatred of the workingman against the State more than the pernicious system of social insurance. The reason is clear: the State takes away one-fifth of his income, in return for which it promises protection in all accidents of life—illness, invalidity, old-age, unemployment, etc.—and cannot keep its promise. An atmosphere impregnated with the mania for pensions and unwillingness to work prevails in the recovery homes and the whole vast imposing edifice of social insurance."

Dr. Wagner, official leader of the German physicians, recommended to the German physicians at a convention the following method for the treatment of dental roots: Put in an arsenic filling and order the patient to come again in a few days. The changes (pains) which result will induce the patient to have the tooth extracted. In this way the treatment of the root, since the sick funds refuse to pay what it really costs, will be avoided.

In Hungary, the united efforts of the physicians, led by the valiant professors of the medical faculty of Budapest, have protected the country from a hypertrophy of socialized medicine.

The U. S. A. has social need, too; there are 14,000,000 unemployed, and responsible men are seeking a cure by introducing this European social hypertrophy. If American physicians think that this system will be of advantage, they are grossly mistaken. Ninety per cent of the Austrian physicians are unable to make a living under it; 400 (10 per cent) Viennese physicians cannot even afford a telephone and have to resort to charity. The socialized insurance did more harm to the physician than the financial crisis.

The American people have trusted the politicians with alcohol control, with its resultant failure and graft. To put the care of the sick under the direction of the state or national politics and their medical puppets would certainly not be advantageous to the patient or the doctor. To trust the care of the sick to corporations for profit where the doctor becomes a chain store clerk under the direction of big business would not help the patient.

If the American people could see what American doctors are seeing in Europe, they would certainly join their forces with those of the doctors to prevent State Medicine in America.

Physicians, guard those possibilities which still enable you to make a living and to give your patient careful, honest attention!

*Caveant consules ne quid detrimenti capiat res publica!*

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# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF ADMINISTRATION

J. N. Baker, M. D.
State Health Officer in Charge

### ALABAMA'S TOLL IN ACCIDENTAL DEATHS

Four hours and thirty minutes is only a short time in this fast age. It represents slightly more than one-half of the business day. It is approximately the span of time that separates breakfast from lunch and supper from bedtime. Most of us spend about twice that much time in bed every day.

Short time though it is, four hours and thirty minutes represented the average period between deaths from various forms of accidents occurring during 1936 in this State. Thus, between one midnight and the next, Alabama accidents caused an average of about five and one-third deaths, with a total for the year of 1,926.

Unfortunately, this total, high as it is, does not include all those who died in this State from accidents during the year. It includes only those who died from accidents occurring within the State. After subtracting from the total just given the deaths in

other states due to accidents occurring in this State and then adding to the figure thus obtained the deaths occurring in Alabama but due to accidents occurring in other states, we reach a somewhat larger total, 1,954. For the purpose of our discussion at this time, however, we shall confine ourselves to the deaths due to accidents actually occurring in Alabama.

Accidents ranked fifth in this State as a cause of death. They killed considerably more people than either tuberculosis, or cancer or influenza. More than six per cent of all deaths were due to this cause, which means that approximately one-seventeenth of all Alabamians who died during the year would probably still be living had they not become victims of accidents, assuming, of course, that none of them would have died from illness, suicide or homicide. During the next decade, if 1936 accident conditions continue unchanged, enough Alabamians will have lost their lives from accidents alone to populate a community nearly as large as Selma, the State's ninth largest city.

A person's home is regarded as a place of safety and refuge from the dangers that lie outside its walls. However, Alabama homes were far from safe in 1936. They were so unsafe in fact that 645 persons lost their lives as a result of accidents occurring in them. Thus, in this supposed haven of safety, mishaps of one kind and another caused an average of more than 12 deaths a week.

Falls of various kinds were responsible for more of these fatal accidents than any other single cause. So don't regard stepladders, chairs, slippery floors, stairways, etc., too lightly. Regard them as the dangerous instrumentalities that they might readily become.

Almost as fatal as falls in the home were various forms of burns, which caused 181 deaths. If we include deaths due to burning buildings, this total is increased to 199, exactly the number of deaths due to falls. Seventy home-accident deaths were caused by asphyxiation, or suffocation, or more than five times as many as died from scarlet fever. Next in importance as a cause of deaths in this category came poison, which added 49 to the State's 1936 toll. Firearms claimed 34 lives, cuts and scratches 13, and drownings 12. Two accidental deaths in the "home" classification were attributed to animals.

At what time of the year, one may ask, is the home safest? When is it most unsafe? Insofar as 1936 mortality figures can give the answer, January is the month when human life is in greatest danger in the average Alabama home, while October and May are the months of least danger. February follows January as the second most dangerous month of the year and is followed, in order, by March, November, December, April, July, August, June, September, May and October.

The vast majority of the victims of fatal accidents occurring in the home were not, as might be supposed, young children, who seem to have a way of getting into danger as soon as their elders' backs are turned, but rather those at the other end of the age scale—that is to say, those 65 years of age and older. This is rather surprising in the light of the fact that, in 1935, those over 64 years old constituted less than four per cent of the State's total population.

Even more fatal than the home was the motor vehicle. In collisions with other motor vehicles, in unintended but fatal assaults upon pedestrians, in right-of-way disputes with railroad trains, in collisions with electric cars, bicycles, animals, fixed objects, buggies, carriages, wagons, etc., and in other accidents in which this messenger of death figured in Alabama, it caused 696 deaths, an average of nearly two a day. The deadly motor vehicle was responsible for more than 35 per cent of all deaths resulting from accidents occurring in this State.

October, the safest month from the point of view of accidents in the home, was the least safe from the point of view of fatal motor accidents, 86 motor vehicle deaths having been reported during that month, as compared with only 38 reported during February, the safest month from this point of view. More than 46 per cent of the total motor vehicle deaths for the year occurred during September, October, November and December.

There seems to be a definite relationship between gasoline consumption and motor vehicle fatalities, as might be expected, since increased gasoline consumption means either higher speed—inasmuch as miles-per-gallon decrease as speed increases—or

increased mileage covered by the State's and the nation's motor vehicle drivers. Through the courtesy of the State Tax Commission, the State Department of Health has obtained figures showing the gasoline tax receipts by months last year, and these figures show that October and September, ranking in first and second places, respectively, in the number of fatalities due to motor vehicle accidents, also ranked in first and second places, respectively, on the basis of gasoline consumption, as indicated by the gasoline taxes collected. February, which ranked at the bottom of the list of months on the basis of motor vehicle fatalities, occupied the same position on the basis of gasoline consumption.

It is realized, of course, that other conditions also played a part in making October the most dangerous month of the year from the point of view of motor vehicle deaths. In October, as most motorists know, weather conditions are particularly changeable and unpredictable. That is the time when highways become crowded with automobiles en route to football games. It is a time when much driving is done at night, when days have become relatively short and the weather is usually just right for late afternoon outings that last until early evening. It is a time when people like to take long walks through the woods and fields and, unfortunately, along the highways.

In that connection, it may be of interest to observe that nearly 31 per cent of all those killed in motor vehicle accidents during 1936 were pedestrians, showing that a walker is in great peril whenever he invades the swiftly-moving world of the rider. Nearly 21 per cent of those killed in motor vehicle accidents died as a result of collisions between motor vehicles and other motor vehicles, and nearly one-third of the total died as a result of accidents not involving collisions of any kind, such as failure to take a curve, skidding on slippery pavements, plunges over steep embankments, etc. Twenty-one persons lost their lives as a result of collisions between motor vehicles and railroad trains, 4 in collisions between motor vehicles and electric cars, 13 in collisions between motor vehicles and bicycles, 11 in accidents involving motor vehicles and horse-drawn vehicles, and 50 in collisions between motor vehicles and fixed objects, such as telephone poles, road markers, trees, houses, etc. Strangely enough, 4 persons were killed in motor vehicle accidents in which the lethal vehicles were standing perfectly still.

Although Alabama is predominantly an agricultural state, with nearly 70 per cent of its population classified as rural, only 47 deaths from industrial accidents—not quite one-fifth of the total—were attributed to agricultural activities. Accidents in mines and quarries were responsible for 49 deaths, logging and sawmill accidents for 34, accidents in manufacturing plants for 20, accidents occurring in the construction industries for 22, and industrial accidents occurring on transportation systems and in other public utilities for 35. Several other types of accidents increased the year's total of industrial accident deaths to 236. The age-group from 25 to 44 years, inclusive, contributed the largest number of these deaths, more than 43 per cent of the total.

In the fourth and final classification, which embraces deaths from those types of accidents not covered by the other three classifications, we find that railroad accidents not involving motor vehicles were responsible for 98 deaths, accidents associated with various forms of recreation for 82 deaths, and accidents associated with boats and other forms of transportation by water for 17. Nine deaths were due to accidents occurring on streets and sidewalks, these, of course, being in addition to those due to motor vehicle accidents. Office buildings, stores and other structures used by the general public were the scenes of accidents fatal to 10 persons. Other accidents in this general category brought fatalities of this kind to 327 for the year.

Deaths due to Alabama accidents are on the increase, decidedly so. Between 1934 and 1936 they increased more than 17.5 per cent. This increase, of course, was out of all proportion to the increase in population. By 1948, unless the present trend is checked, more than twice as many people will meet death on Alabama's highways, in Alabama's industrial plants, in Alabama homes, and elsewhere in the State where accidents happen, as did so in 1936.

Public health agencies and the ever-alert medical profession have been successful in their disease-prevention campaigns, but they are powerless to do anything to curb the mounting toll of accidental deaths be-

yond offering such aid as they can to the injured and attempting to develop an accident-consciousness among the general public. Each person, in his or her own small, individual way, can and should help in the effort to prevent deaths by preventing accidents, which, in almost every case, are the result of somebody's not being quite careful enough.

## BUREAU OF LABORATORIES

Samuel R. Damon, Ph.D., Director

### THE LABORATORY DIAGNOSIS OF LOBAR PNEUMONIA

#### TYPING SERVICE AS RENDERED BY THE LABORATORIES OF THE STATE DEPARTMENT OF HEALTH

Recently the Committee on Postgraduate Study of the State Medical Association sponsored a program on the newer methods of treatment of lobar pneumonia. This program was offered in various sections of the State and proved of timely interest to physicians in general. At that time typing service in lobar pneumonia was not readily available to a great number of physicians in Alabama. Therefore, it was felt that the addition of this procedure to the services offered by the State Laboratories would be of decided advantage to these practitioners. Consequently, this new facility has been added to the services rendered to physicians by the Bureau of Laboratories and is now available through State Laboratories located in Anniston, Birmingham, Decatur, Dothan, Huntsville, Mobile, Montgomery, Selma and Tuscaloosa. Typing service will be rendered as expeditiously as possible through these laboratories during their regular office hours; on week ends and holidays, specimens will be handled on the same basis as is other work of an emergency nature.

Positive reports will be made by wire, collect, unless the laboratories are otherwise instructed by the physician. Type differentiation will be offered only for those types for which there is antipneumococcic serum of known therapeutic value available; namely, types I, II, III, V, VII, and VIII. Negative reports will, therefore, be written for the physicians as follows: "Negative for types I, II, III, V, VII and VIII." Positive examinations will be reported as positive for the type found.

As the higher types of pneumococci are commonly found in the nose and throat of normal persons, specimens found positive for types higher than I and II should be checked by a second specimen, to be certain that the higher type is not a chance contaminant. Typing will be by the method of Neufeld, which has the advantage of both rapidity and reliability.

Suitable containers for the submission of specimens of sputum for pneumococcus typing may be obtained from any of the above mentioned laboratories. These containers consist of a small, sterile, wide-mouth bottle in a mailing case. These bottles contain no disinfectant, and no disinfectant should be added to them, as living organisms are necessary for typing purposes. About a teaspoonful of sputum should be obtained directly from the lungs and should be as free of nasal and pharyngeal secretions as possible. Sputum specimens for pneumococcus typing should be sent to the laboratory with the least possible delay. If delay is unavoidable, the specimen should be kept cold until mailed. Specimens of this nature will remain satisfactory for examination for as long as 48 hours after collection.

Before the submission of a specimen for pneumococcus typing, at least a tentative diagnosis of lobar pneumonia should have been made on the basis of clinical findings. Specimens should not be submitted from cases of common colds, influenza, etc. Pneumococcus type differentiation is of no value unless specific serum therapy is contemplated as other methods of treatment of pneumonia are the same for all types. Therefore, it is requested that the laboratories not be burdened with unnecessary and valueless specimens from cases of common colds, or from cases of pneumonia when it is not planned to administer serum.

C. B.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### COMMUNICABLE DISEASES DURING 1937

The number of cases of communicable diseases reported in Alabama in 1937, as compared to the number reported in 1936 and the median incidence of the nine years 1928-1936, is given in the following tabulation:

| | 1937 | 1936 | Median 1928–1936 |
|---|---|---|---|
| Typhoid | 317 | 491 | 772 |
| Typhus | 478 | 369 | 237 |
| Malaria | 4,590 | 8,438 | 6,473 |
| Smallpox | 48 | 13 | 187 |
| Measles | 601 | 604 | 4,193 |
| Scarlet fever | 658 | 732 | 1,211 |
| Whooping cough | 1,694 | 627 | 1,558 |
| Diphtheria | 966 | 1,063 | 1,595 |
| Influenza | 17,167 | 19,845 | 15,535 |
| Mumps | 1,496 | 2,581 | 911 |
| Poliomyelitis | 82 | 391 | 58 |
| Chickenpox | 1,370 | 1,217 | 1,426 |
| Tuberculosis | 3,021 | 3,141 | 3,610 |
| Pellagra | 270 | 300 | 626 |
| Meningitis | 338 | 97 | 83 |
| Pneumonia | 4,446 | 5,733 | 3,313 |
| Syphilis | 16,384 | 11,223 | 1,998 |
| Chancroid | 129 | 135 | 87 |
| Gonorrhea | 4,548 | 3,773 | 2,154 |
| Tetanus | 50 | 65 | 57 |
| Trachoma | 11 | 0 | 6 |
| Ophthalmia | 15 | 19 | 19 |
| Undulant fever | 48 | 43 | 20 |
| Tularemia | 17 | 10 | 9 |
| Encephalitis | 25 | 17 | 29 |

There are several very interesting changes in health conditions in the State as revealed by the above figures. First in importance is probably the new all-time low record for typhoid fever. Not many years ago there were at least this number of deaths each year and, while the deaths are not yet available for 1937, they should be at a correspondingly low level. Diphtheria continued its downward trend but the rate of decline is slow and there is still room for continued work. Malaria, after three high years, began to recede. This disease fluctuates in cycles and we may reasonably expect another low year in 1938.

Poliomyelitis, after the epidemic of 1936, returned to normal expectancy. Influenza and pneumonia were both above normal due to several high months early in the year. Meningitis was more prevalent than at any time in recent years. This disease became prominent in Jefferson County early in the year and after a let-up during the summer was again prevalent at the close of the year. While most of the cases occurred in Jefferson, several of the adjoining counties were involved.

With the exception of influenza, there were more cases of syphilis reported than any other disease. This is not indicative of an increased incidence but reflects rather the interest that has been created in combating this scourge. The figures do indicate, however, something of the problem confronting the medical profession.

## NON-INTRAVENOUS TREATMENT OF EARLY SYPHILIS

Sometime ago a physician requested information on how to treat adult patients with syphilis whose veins were so small as to preclude the intravenous method. A similar problem arises in some children with small veins.

The answer, of course, is sulpharsphenamine. This drug can be given intramuscularly. In fact it is the only arsenical that can be used by this route but great caution must be exercised when it is used in adults. Of all the arsenicals, sulpharsphenamine produces the greatest number of reactions. Hence, under its administration, it is well to question the patient after the first injection and before the next in regard to itching of the skin, continued nausea or vomiting, cramps or diarrhea, continued fever or extreme nervousness. If any of these symptoms persist for 24 to 48 hours after an injection, it would be well to discontinue the drug for a time, substituting bismuth. Besides questioning the patient, it would be well to examine the patient's skin for evidence of a rash and to examine the urine. In children, sulpharsphenamine does not seem to produce reactions any oftener than the other arsenicals that are used intravenously.

In preparing sulpharsphenamine, 2 cc. of sterile distilled water are used to dissolve the 0.4 grams of the drug and the drug is injected intramuscularly into the outer, upper quadrant of the buttock. In intramuscular therapy care should be taken to inject the drug into the muscle tissue. Too deep or too superficial injections often result in pain and the buttock ought to be alternated for the injections.

A suggested outline of treatment is as follows:

ROUTINE NON-INTRAVENOUS TREATMENT OF EARLY SYPHILIS

| Week | Dose of Sulpharsphenamine | Dose of Bismuth |
|---|---|---|
| 1 | 0.2 gm. | |
| 2 | 0.2 | |
| 3 | 0.4 | |
| 4 | 0.4 | |
| 5 | 0.4 | |
| 6 | 0.4 | |
| 7 | 0.4 | |

| Week | Dose of Sulpharsphenamine | Dose of Bismuth |
|---|---|---|
| 8 | | 2 cc. |
| 9 | | 2 |
| 10 | | 2 |
| 11 | | 2 |
| 12 | 0.4 | |
| 13 | 0.4 | |
| 14 | 0.4 | |
| 15 | 0.4 | |
| 16 | 0.4 | |
| 17 | | 2 |
| 18 | | 2 |
| 19 | | 2 |
| 20 | | 2 |
| 21 | | 2 |
| 22 | 0.4 | |
| 23 | 0.4 | |
| 24 | 0.4 | |
| 25 | 0.4 | |
| 26 | 0.4 | |
| 27 | | 2 |
| 28 | | 2 |
| 29 | | 2 |
| 30 | | 2 |
| 31 | | 2 |
| 32 | | 2 |
| 33 | 0.4 | |
| 34 | 0.4 | |
| 35 | 0.4 | |
| 36 | 0.4 | |
| 37 | 0.4 | |
| 38 | 0.4 | |
| 39 | | 2 |
| 40 | | 2 |
| 41 | | 2 |
| 42 | | 2 |
| 43 | | 2 |
| 44 | | 2 |
| 45 | | 2 |
| 46 | 0.4 | |
| 47 | 0.4 | |
| 48 | 0.4 | |
| 49 | 0.4 | |
| 50 | 0.4 | |
| 51 | 0.4 | |
| 52 | | 2 |
| 53 | | 2 |
| 54 | | 2 |
| 55 | | 2 |
| 56 | | 2 |
| 57 | | 2 |
| 58 | | 2 |
| 59 | 0.4 | |
| 60 | 0.4 | |
| 61 | 0.4 | |
| 62 | 0.4 | |
| 63 | 0.4 | |
| 64 | 0.4 | |
| 65 | | 2 |
| 66 | | 2 |
| 67 | | 2 |
| 68 | | 2 |
| 69 | | 2 |
| 70 | | 2 |
| 71 | | 2 |
| 72 | | 2 |
| 73–124 | No treatment | |

# BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

## A METHOD OF ARTIFICIALLY FEEDING THE NORMAL INFANT

Three main principles must be kept in mind in feeding infants: first, the proper elements, milk, water, and sugar, must be used; second, these elements must be digestible; and, third, these elements must be given in proper amounts.

For the purpose of placing in the hands of the practicing physician a practical method of artificially feeding the average well infant, a formula consisting of evaporated milk, water, and Karo syrup is recommended. If it is desirable to use whole cow's milk in place of evaporated milk, or lactose or malt dextrin compounds in place of Karo syrup, these can easily be substituted in required amounts.

### DETERMINATION OF PROPER AMOUNTS OF ELEMENTS

The caloric needs of the child depend upon his state of nutrition, and this fact should be observed in order to place him in one of the following classes:

1. Fat normal babies, who need 40-45 calories per pound of body weight.
2. Thin babies, who need 50-55 calories per pound of body weight.
3. Emaciated babies (including prematures), who need 60-65-70 calories per pound of body weight.

For the purpose of clarifying the above classification, the following example is given: A thin baby, two months of age weighing ten pounds, should receive approximately fifty calories per pound of body weight or a total of five hundred calories in twenty-four hours. After knowing the caloric needs of the child for twenty-four hours, the formula should now be computed to estimate the amounts of Karo syrup, evaporated milk, and water required in the order given. It will be noted under Reference One, below, that the amount of Karo syrup used is three tablespoonfuls, supplying one hundred and twenty calories. (Other sugars may be substituted in proper amounts.) Subtracting these calories from the twenty-four hour requirement (five hundred), there remain three hundred and eighty calories to be furnished by the evaporated milk, since the water in the formula

has no food value. Evaporated milk (Reference Two), having forty calories per ounce, therefore comprises 9.5 ounces (380 ÷ 40 = 9.5 ounces).

The amount of water in the formula, as in any formula, depends upon the amount of fluid given the baby per feeding (Reference Three) and the number of feedings given in twenty-four hours. Estimating that a two months old baby will take approximately five ounces per feeding (more or less) and that he gets six feedings per day at three-hour intervals (Reference Four), the total formula would consist of 6 x 5 ounces or thirty ounces in twenty-four hours. With 9½ ounces already supplied by evaporated milk the amount of water to be added would be 20½ ounces. The mother should be instructed to make up full twenty-four hour quantities if she has facilities for refrigeration, and to divide the formula into the required number of feedings.

This formula is computed so that the baby may gain five to seven ounces per week up to the third month and four to six ounces after this period, up to one year of age.

GENERAL SUGGESTIONS IN INFANT FEEDING

1. Remember that a large percentage of infants are underfed.

2. Never start a baby on a concentrated formula but reduce it to 1/3 or 1/2 strength and increase it daily or every other day until the eventual formula is reached.

3. The importance of regular feeding should be stressed to mothers, and also the necessity of visiting their physicians for routine examinations of the baby and adjustment of the baby's diet.

4. Cod liver oil or substitute should be begun at four weeks and orange juice at six weeks of age.

5. If whole cow's milk is used, the milk should be kept refrigerated until used. In preparing the formula it should be boiled for three minutes, stirring continuously to break up the curd and prevent the formation of a scum on the surface of the milk.

6. Remind the mother that the formula should be increased as the child grows and that the attending physician should be consulted for this purpose.

7. These suggestions are for well babies only and the physician is to be consulted if the child is ill or if the formula does not agree.

REFERENCE ONE

Caloric values of sugars:

Cane sugar—2 level tablespoonfuls=1 ounce=120 calories
Lactose—3 level tablespoonfuls=1 ounce =120 calories
Dextrimaltose—4 level tablespoonfuls=1 ounce=120 calories
Dextrivitavose—4 level tablespoonfuls= 1 ounce=120 calories
Karo syrup—3 level tablespoonfuls=1½ ounces=120 calories

Amounts of sugar needed:

Babies under ten pounds in weight require one ounce in twenty-four hours.
Babies over ten pounds in weight require one and one-half ounces in twenty-four hours.

REFERENCE TWO

Milk (breast and cow's) has twenty calories per ounce. Evaporated milk has forty calories per ounce. Examples of evaporated milk are Carnation, Pet, Borden's. Condensed milk is condemned because of its high sugar content.

REFERENCE THREE

Amount of formula at each feeding:

Minimum 3 ounces—maximum 8 ounces.
Baby will take approximately 1-2 ounces more than its age in months, but this amount should be determined in each individual case.

REFERENCE FOUR

Number of feedings in twenty-four hours:

Under twelve pounds of weight it is recommended that the child should have seven feedings, but this can be reduced earlier by eliminating the 2 A. M. feeding, if all other conditions are normal.

At 12-15 pounds of weight, the child should be given six feedings at three hour intervals, and beyond this period five feedings at four-hour intervals.

The three-hour feeding schedule is as follows: 6 A. M., 9 A. M., 12 M., 3 P. M., 6 P. M., 10 P. M., and 2 A. M.

The four-hour schedule is as follows: 6 A. M., 10 A. M., 2 P. M., 6 P. M., 10 P. M.

J. J. R.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### THE PRINCIPLES OF MEDICAL STATISTICS

A book recently published by the Lancet, Limited, 7 Adam Street, Adelphi, London, entitled "Principles of Medical Statistics," by A. Bradford Hill, should be in every physician's library.

In this delightful book of 171 pages, Dr. Hill has sought to show certain statistical methods applicable to the field of medicine. Examples have been taken from numerous medical publications to illustrate the types of problems with which the medical worker is faced and the kinds of error he is most liable to make. So far as possible the usual mathematical presentation of such subject matter has been avoided.

The worker in medical problems, in the field of clinical medicine as well as preventive medicine, should know something of statistical technique, both in experimental arrangements and in the interpretation of figures.

This book is divided into 17 chapters. The first chapter refers to the aim of the statistical method, including the definition of statistics, the planning and interpretation of experiments. An unbiased selection of data is stressed in order that correct conclusions may be drawn.

In the second chapter the selection of samples is discussed. It is almost always necessary to work with samples since the entire universe can seldom be studied. Samples should be representative, but sometimes factors unforeseen or unrealized affect the selection made. Care should be taken to detect them as far as possible before proceeding with a study.

After the facts have been gathered they must be presented in proper form. Chapter II discusses their presentation. Graphs are included. They are most valuable if properly used, but should never be substituted for tabular matter. Differences in scales may make the same data appear quite differently and thus result in faulty conclusions.

Chapter IV considers various ways of describing frequency distributions of a series of observations, including the mean, standard deviation and coefficient of variation. The meaning and computation of the standard deviation is further dealt with in Chapter V. In Chapter VI, averages are discussed and their interpretation in relation to the total universe. Chapter VII considers proportions and per cents and the chance errors of each. In Chapter VIII, the method of determining the statistical difference between two proportions, two means, etc., is considered. This is important, because, it frequently becomes necessary to recognize statistical differences of one group treated in a certain way and another, untreated.

Chapter IX presents the $x^2$ (chi square) test for determining whether differences are in fact likely or unlikely to occur by chance. Such problems as the association between hair color and the presence of active tuberculosis might be under consideration. Chapter X discusses further applications of the $x^2$ test, particularly with regard to its usefulness in testing the presence or absence of association between characteristics which cannot be quantitatively expressed.

The subject of correlation and the calculation of the coefficient of correlation is taken up in Chapters XI and XII. Evidence of correlation is not necessarily evidence of causation. In Table XIII the mean expectation of life is briefly discussed. Chapters XIV-XVI consider fallacies and difficulties encountered in the treatment of statistics. Care should be taken to compare data which are comparable.

Chapter XVII includes a general summary of the discussion in preceding chapters. Many of the problems we have to solve are statistical and there is no way of dealing with them except by statistical method.

A handy list of definitions of statistical terms is included and the book is well indexed. Its modest price of $2.00 does not reflect the true value of this book to the physician.

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## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### CHANGING TRENDS IN SANITATION WORK

Activities directed at securing proper disposal of body wastes have been influenced by many factors which have necessitated varying trends in methods of procedure and operation. The program as directed by the Bureau of Sanitation has passed

through four major phases or eras, each during its development pointing the way for future activity and providing a stepping stone by which the ultimate goal might be reached. One by one, obstacles blocking the path have been met and overcome.

The question of type of sanitation to be employed in urban and rural areas was solved, after several years of experimental work, with the development and adoption of the standard pit privy.

The need of additional impetus to set the program in motion was supplied by the passage of the state privy law. Although the law enforcement program that followed was retarded by insufficient health personnel for extensive operations and cut short by the economic depression which gripped the country, its purpose was at least partially reached in the mass construction obtained and the resulting enlightenment of the public.

The drastic reduction in county and state personnel together with general economic conditions gave birth to a new method of attack. In cooperation with the various work relief agencies, sanitation projects were formulated. The opportunity of securing free labor lightened the burden on the property owner. Funds, made available through the relief agencies to supplement regular personnel, enabled the Bureau of Sanitation to select and place in the field as project supervisors men trained in the basic principles of engineering. This marked the beginning of a change in the quality of county sanitation officers. Later this change was further accentuated at a conference of State and Territorial Health Officers with the Public Health Service when certain definite qualifications were proposed for sanitation officers employed with funds made available through the Social Security Act.

The Social Security Act also set aside certain funds to be used for additional training of personnel engaged in the field of sanitation. Through the cooperation of Vanderbilt University, U. S. Public Health Service and the state health departments of several southern states, a special short course for sanitation officers was offered at Vanderbilt. Four sanitation officers from Alabama attended Vanderbilt for three months, the duration of the course, in the fall of 1936. Eight more received this training in the fall of 1937 and another eight men will attend Vanderbilt in the spring of 1938.

Thus, with the return of more favorable economic conditions, the gradual discontinuation of W. P. A. sanitation projects and a strengthened and more adequately trained field personnel, a new approach to the sanitation problem began to shape.

Up until this time the progress of the sanitation program had been measured by the number of individual installations accomplished. Promotional work was largely on an individual basis. Each privy was considered the unit. It is true that during the law enforcement period an attempt to solve the problem of municipal sanitation was made and was successful to a marked degree. Even though aided by local ordinances, however, it was realized then that police power alone could not adequately or justly solve a municipality's waste disposal problem. The economic factor, the problem of financing a pit toilet system, could not be solved in a police court. Additional legislation was necessary.

The regular session of the legislature of 1935 passed an act known as the Kelly Act. By utilizing the powers of the Kelly Act, a city may carry out a complete municipal sanitation program on a self-liquidating basis. Property owners who are not able to bear all of the financial burden at once are permitted to pay for the sanitation over a period of years. Fortified with this legislation, the promotion of municipal sanitation on an organized basis was begun early in 1937. The general procedure was as follows: A house-to-house survey was made to determine the existing conditions. Results of this survey were tabulated and also shown on a sketch map of the city. A complete report and analysis of the condition together with recommendations was submitted to the city governing body. A municipal ordinance was adopted which embodied the Kelly Act and defined and designated the different types of sanitation to be installed with reference to the economic status and location of the property. When property has been classified and methods of disposal have been likewise classified, adjustments can be made to meet conditions physical and economic.

With this method of approach, the program has gathered momentum. Municipalities have come to realize that their responsibility does not cease with the installation

of a sewer system, that an auxiliary system consisting of pit toilets and septic tanks must be provided for those areas not served by the sewer; that the financing, construction, and maintenance of such a system must come through the municipality's powers of organization, taxation, and police.

The plan is fundamental. A number of cities have already shouldered their responsibility; others will follow. The trend of thought along sanitation lines has changed again. No longer is the individual installation considered the unit. The thought is in terms of complete cities.

The problem of rural sanitation looms in the future. Its ultimate solution remains to be seen. Perhaps additional legislation will be necessary. Perhaps the county will supplant the city in the mind of those engaged in work of protecting the people of Alabama from the dangers arising from the improper disposal of human wastes.

G. S. S.

## CURRENT STATISTICS

### *PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| | 1937 | | Estimated Expectancy |
|---|---|---|---|
| | Nov. | Dec. | Dec. |
| Typhoid | 17 | 14 | 32 |
| Typhus | 35 | 27 | 22 |
| Malaria | 172 | 92 | 167 |
| Smallpox | 1 | 1 | 6 |
| Measles | 18 | 66 | 73 |
| Scarlet fever | 96 | 87 | 164 |
| Whooping cough | 51 | 107 | 97 |
| Diphtheria | 144 | 108 | 181 |
| Influenza | 354 | 746 | 411 |
| Mumps | 22 | 41 | 57 |
| Poliomyelitis | 6 | 6 | 2 |
| Encephalitis | 1 | 2 | 1 |
| Chickenpox | 93 | 134 | 204 |
| Tetanus | 7 | 5 | 3 |
| Tuberculosis | 208 | 224 | 243 |
| Pellagra | 20 | 10 | 20 |
| Meningitis | 19 | 31 | 6 |
| Pneumonia | 242 | 479 | 398 |
| Syphilis | 1397 | 1282 | 155 |
| Chancroid | 14 | 12 | 3 |
| Gonorrhea | 299 | 293 | 156 |
| Ophthalmia neonatorum | 2 | 0 | 2 |
| Trachoma | 6 | 2 | 1 |
| Tularemia | 1 | 0 | 1 |
| Undulant fever | 2 | 2 | 3 |
| Dengue | 0 | 0 | 0 |
| Amebic dysentery | 1 | 1 | 0 |
| Rabies—Human cases | 0 | 1 | 0 |
| Positive animal heads | 59 | 72 | |

*As reported by physicians and including deaths not reported as cases.

The Estimated Expectancy represents the median incidence of the past nine years.

With the venereal diseases, clinic cases were not included prior to 1936.

# Book Abstracts and Reviews

**Lobar Pneumonia and Serum Therapy.** By Frederick T. Lord, M. D., Clinical Professor of Medicine, Harvard Medical School; and Roderick Heffron, M. D., Field Director, Pneumonia Study and Service, Massachusetts Department of Public Health. 91 pages. New York: The Commonwealth Fund, 1936. Cloth, $1.00.

This book will find favor among busy practitioners because it gives a brief and concise summary of our more recent knowledge of pneumonia. Discussions are clear and pointed; there are no important omissions.

Diagnosis is never complete until the etiology has been established. Early clinical diagnosis should be followed by prompt determination of the specific type of infecting pneumococcus in order to institute specific serum treatment without delay. Methods of obtaining the sputum for typing are described, and the physician is now told how to interpret the laboratory report.

The eye test and skin test are advocated for determining sensitivity to horse serum. Their interpretation, together with a comprehensive outline of circumstances which contraindicate serum therapy, is presented.

Antiserum is administered intravenously at two-hour intervals. The first dose is a test dose (2 cc.); subsequent doses are larger, and are continued until the total dosage is given. In the early treatment of mild or moderate infections 60,000 units are recommended for type I cases and 100,000 units for type II cases. This is based on the extensive studies of specific treatment of pneumonia made in Massachusetts. The most reliable guides to the need of further dosage are the level of the temperature and the presence or absence of bacteremia.

G. A. D.

**Clinical Parasitology.** By Charles Franklin Craig, M. D., F. A. C. S., F. A. C. P., and Ernest Carroll Faust, M. A., Ph.D., Tulane University of Louisiana, New Orleans, La. Philadelphia: Lea and Febiger, 1937. 733 pages, illustrated with 243 engravings. Cloth, $8.50, net.

Clinical parasitology is a subject of increasing importance to the physician and student. It is true that many of the animal parasites are more prevalent in the tropics than in the temperate zones, but nevertheless some of them present serious clinical and public health problems in all portions of the world. The reports of investigators in our public health laboratories furnish ample evidence of the increasing importance of these parasites as the etiologic agents of human disease.

This volume is designed to meet the need of the physician to keep up with the important advances taking place in the field of clinical parasitology. In it the authors present in concise form the essential facts regarding the animal parasites of man and the diseases produced by them, together with approved methods of diagnosis, treatment and control.

The authors evidently have collaborated and conferred with each other on all the subjects considered in this volume and have achieved a notable unification of the subject matter. It is to be noted, however, that the senior author (Craig) assumes responsibility for the section on Protozoa and Protozoan Infections and for the material in this field

found in the Technical Appendix. The junior author (Faust) wrote the General Introduction, the section on Helminths and Helminth Infections, the section on Arthropods and Human Disease and the material in the Technical Appendix covering these subjects.

The bibliography is extensive and there is an index of authors as well as subjects. The illustrations are numerous and in the great majority of instances depict preparations made by the authors.

The book is well printed and the proof-reading was evidently very carefully done. On the whole it is a volume of which both the authors and publishers may well be proud and it will be a real addition to the library of anyone having an interest in the subject.

S. R. D.

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**Human Helminthology.** By Ernest Carroll Faust, M. A., Ph.D., Tulane University of Louisiana, New Orleans. Philadelphia: Lea & Febiger, 1929. 582 pages with 297 engravings. Cloth, $8.00, net.

A comprehensive presentation of the information on parasitic worms of man available at the date of publication. The subject is treated fully by an acknowledged authority for the benefit of the clinician, the sanitarian and the student. The many species of worms parasitic to man are considered systematically and in detail. Classification, structure, life history, treatment and control methods are discussed. The book is well illustrated.

While this book is the best and latest English publication dealing exclusively with human helminths and is worthy of a place in the library of any practitioner, or student, one is driven to the conclusion that, valuable as the book may be as a source of information, its value might be tremendously increased by an up-to-date revision. This fact is particularly obvious when one remembers the many advances made in helminthology since 1929.

C. B.

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**The Sputum, Its Examination and Clinical Significance.** By Randall Clifford, M. D., Associate in Medicine, Peter Bent Brigham Hospital; Assistant in Medicine, Harvard Medical School; Formerly Associate Physician and Director of Pulmonary Clinic, Massachusetts General Hospital. New York: The Macmillan Company, 1932. $4.00. 167 pages.

A treatise on sputum for the practicing physician and the medical student which gives in detail methods for examining the sputum both macroscopically and microscopically. The character and clinical significance of the sputum are given in some of the more common diseases of the bronchi and lungs. The book is practical, well illustrated, and should be of value to interested practicing physicians.

C. B.

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**The Laboratory Diagnosis of Syphilis.** By Harry Eagle, M. D. Passed Assistant Surgeon, U. S. Public Health Service, Washington, D. C.; Lecturer in Medicine, Johns Hopkins University Medical School, Baltimore, Md.; Formerly Assistant Professor of Bacteriology, University of Pennsylvania Medical School. St. Louis: The C. V. Mosby Company, 1937. 440 pages. $4.00.

A complete discussion of the subject of serum diagnosis in syphilis. Of interest to the practicing physician desiring authoritative information on the various sero-diagnostic technics employed in the diagnosis of syphilis and a better understanding of the significance of laboratory reports.

Light is thrown on some of the conflicting claims of the advantage offered by the various modifications of the Wassermann test and by the numerous flocculation reactions.

Definite, detailed recommendations are made for standardization of tests which should be of considerable interest to serologists in general.

C. B.

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**Clinical Toxicology: Modern Methods in the Diagnosis and Treatment of Poisoning.** By Erich Leschke, Professor of Internal Medicine in the University of Berlin. Translated by C. P. Stewart, M.Sc., Ph.D., Lecturer in Biochemistry, University of Edinburgh; and O. Dorrer, Ph.D., Research Assistant, Munich. Cloth, with 25 illustrations. Pp. 256. William Wood & Company, Baltimore, 1934.

This is a very interesting little book in which the author attempts to bring to the attention of the practicing physician our present knowledge of toxicology as it applies to industry and to industrial poisoning. While many of the industrial poisons are covered in a thorough and enlightened fashion, others of equal importance are treated in a most cursory manner; and still others, especially certain of the metallic poisons, are given more serious consideration than actual experience warrants. The section on lead, carbon monoxide and chronic mercury poisoning are quite good indeed, and cover most of the more recent work in these fields. The sections on benzene and the chlorinated hydrocarbons, both important sources of industrial intoxication, are not very satisfactory.

Withal, the book will be very useful to the physician who sees occasional cases of industrial poisoning, as he will at least find a few lines on most any poisonous substance likely to be encountered in industry. In addition, the author has included case reports in many of the sections to illustrate the wide variety of manifestations which are characteristic of many of these poisons.

The last chapter, prepared by Koelsch, is devoted to a discussion on the prevention and compensation of industrial poisoning.

W. F. Q.

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**Industrial Poisons In The United States.** By Alice Hamilton, A. M., M. D. Pp. 590. The Macmillan Company, New York, 1925. Price $5.00.

At the time this book was published it was probably the leading work of its kind in the English language, and it still contains a wealth of information which is just as true today as it was then. The author is one of the American pioneers in this field, and the book presents not only a careful review of the literature up to 1924, but the fruit of wide personal experience and investigation in the field of industrial toxicology. The volume contains numerous case reports of industrial poisoning with a description of the circumstances surrounding their acquisition. The chapters on lead, benzene and the benzene derivatives, and the coal tar industry are exceptionally good, and thoroughly treated.

While this book has a valuable place in the library of the physician who sees industrial patients, it has been largely superseded by a more recent book by the same author titled "Industrial Toxicology." Both books are highly recommended.

W. F. Q.

# Miscellany

ADVERTISERS' NOTES

## OPPORTUNITY FOR PHYSICIANS TO TOUR AMERICA EN ROUTE TO THE CONVENTION

The thought that the forthcoming A. M. A. Convention in San Francisco, June 13th to the 17th, is such a splendid opportunity for a tour of the United States, both going out and coming back, has inspired definite action. The cooperation of more than 25 state medical societies has made it possible to arrange a special train tour which will include such outstanding highlights of the North American continent as the Indian Detour, the Grand Canyon, Los Angeles, Riverside and Santa Catalina Island—on the way out to San Francisco. A choice of two return routes are possible, one of which visits the charming cities of Portland, Seattle, Victoria and Vancouver and the beautiful scenic spots of the Canadian Rockies; the second route travels via Yellowstone National Park, Salt Lake City, Royal Gorge, Colorado Springs, and Denver.

There is an all-inclusive price for this tour which includes transportation from home-town to home-town, though the tour starts officially at Chicago on Monday, June 6th, from which point an American Express escort joins the group, as this travel company has been appointed transportation agent and the business details of the trip are in their capable hands.

Let us take a preview of the tour. The first day out of Chicago, racing across the broad, wheat-growing face of Kansas, we become acquainted with our traveling companions, physicians from other states, their families and friends, and find ourselves among congenial, like-minded traveling companions. We first leave our train at Lamy, New Mexico, to enter the Indian Pueblo district by motor coach. We spend a whole day exploring the traces left by a vanished civilization on this continent, visiting Santa Fe, Tesuque, Puye and Santa Clara Pueblo.

The next morning's arrival at the Grand Canyon will remain in our memories forever. The vast chasm, 4 to 18 miles wide from rim to rim, gives us stupendous vistas of awe-inspiring beauty, unparalleled the world over. We drive over the famous Hermit Rim Road, skirting the edge of the chasm in the morning, and in the afternoon over the Desert View Road through the Tusayan National Forest and along the Canyon's rim, stopping at Yavapai Point Observation Station for a short, interesting lecture by the Park Naturalist. This drive ends at the Watch Tower, a recreation of the ancient towers erected by the prehistoric inhabitants of the southwest.

The golden, amazing city of Los Angeles is next on our itinerary, and our sightseeing trips acquaint us with its Spanish Quarter and Chinatown, as well as its beautiful environs, including flowering Pasadena. Riverside and its orange empire, its lemon and grapefruit orchards and its famous Mission Inn, is another destination; and then, on our third day in California we sail to beautiful Santa Catalina Island, playground of this land of the sun. And in this delightful manner, a week after leaving Chicago we arrive at San Francisco in time for the Convention. We shall not discuss the interesting time that awaits us at our conclaves, as the object of this article is to describe the pre- and post-convention tour. So we turn again to our itinerary after the Convention.

Supposing we had chosen Return Route No. 1. We shall visit Portland, Oregon, famed as the city of roses, and enjoy as well a drive along the noted Columbia River Highway. Seattle is next, and here we also cover all the points of interest, including both the Lake and Sound districts. Now the Canadian part of our journey begins, and we sail by comfortable steamer to the cities of Victoria and Vancouver, where we do sightseeing. Now a train takes us into the enchanting scenic regions of the Canadian Rockies, and we stop at Chateau Lake Louise, at the lake of the same name—a gem of exquisite color, surrounded by green forests and snowy peaks. Our drives through the heart of the Rockies take us to Moraine Lake, the Valley of Ten Peaks, Johnson Canyon and finally to Banff, where we make another stopover.

Return Route No. 2 takes us to Chicago in a more southerly route. A 3½ day tour of Yellowstone National Park is one of the highlights of this tour. Ranger naturalists conduct our party to the geysers and hot pools, and we feast our eyes on Old Faithful in its hourly eruption. We also see the Grand Canyon of the Yellowstone and Mammoth Hot Springs. Salt Lake City is

on our itinerary, which gives us an opportunity to visit Saltair Beach on Great Salt Lake, also the Great Copper Mills and Smelters. Our next call is at Colorado Springs, the noted health and pleasure resort. Our travels in the Rockies take us up to the summit of Pikes Peak, to the Garden of the Gods, to Seven Falls, and finally to Denver. This lovely city is a center for outings in the Rockies, and we are soon off on a 65-mile tour of Denver Mountain Parks, including Memorial Museum and Tomb of Buffalo Bill of western fame.

The above is barely a glimpse of the outline of the tours, but it is hoped that some idea has been given of the enjoyable travel awaiting those physicians, and their families and friends, who wish to combine attendance at the Convention with an interesting journey and a happy vacation.

RECENT STATEMENT BY THE JUDGES OF THE MEAD JOHNSON VITAMIN A AWARD

"The Vitamin A Award offered by Mead Johnson & Company was supposed to be made on the basis of papers published or accepted for publication by December 31, 1936. The judges of this award, meeting in New York, June 4, 1937, feel that its presentation at this time is not warranted since no clinical investigation on vitamin A has yet been published which completely answers any of the objectives of the original proposal. The judges, therefore, agreed to defer further consideration of the granting of this award until December 31, 1939. This action was taken because of the existence of pronounced differences of opinion among investigators as to the reliability of any method yet proposed for determining the actual vitamin A requirements."

STATEMENT BY MEAD JOHNSON & COMPANY

In view of this action by the judges of the Mead Johnson Vitamin A Award, and as an earnest of our good faith in the matter, we have segregated from our corporate funds on deposit with the Continental Illinois National Bank & Trust Company of Chicago, the sum of $15,000. This cash deposit has been placed in escrow and will be paid promptly when the board of judges decides on the recipient of the Main or Clinical Award. The Laboratory Award of $5,000 was made on April 10th, 1935.

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# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 9** **Montgomery, Alabama** **March 1938**


## TECHNIQUE OF ANESTHESIA*

AS PRACTICED AT EMPLOYEES HOSPITAL


By

E. B. ROBINSON, JR., B. S., M. D.†

Fairfield, Ala.


Anesthesia, as a practical aid to surgery, was born and fostered in the United States. Introduced here ninety years ago, enthusiastically received throughout the world, and impelled by the ever-increasing needs and opportunities for its application, one would have predicted that the development of this specialty would have been systematic, logical and continuous. Contrary to this expectation its progress has been slow, but it is possible that greater interest is being manifested in anesthesia at the present time than during any preceding period following the first successful venture. This may probably be explained by several factors, the three most important of which have been the introduction of newer anesthetic agents and methods, the cooperation of a group of increasing numbers of surgeons and the progress accomplished by medical men concentrating exclusively on anesthetic problems.

Trained anesthetists have much to offer the patient in the way of diminished discomfort and even more in the way of lessened risk. They have, likewise, much to offer the surgeon in the way of making operating conditions easier for him. The newer forms of anesthesia demand capable and experienced men for their employment. Such men must not only know the technique of their administration but should know the underlying pharmacologic and physiologic actions. Most important of all, they should keep in mind at all times the extent to which any chosen agent may be used, and should attempt to maintain as near normal physiology during narcosis as is possible.

*Read before the Calhoun County Medical Society, November 16, 1937; Jefferson, November 1.

†Chief Anesthetist, Employees Hospital.

The discussion of our technique will deal with only those agents and methods used since July 1, 1936, at which time our present technique was started; however, with later modifications.

The agents we employ, in their order of frequency, are cyclopropane, spinals, regional, ether and nitrous oxide. We have administered sodium pentothal intravenously and vinethene to a few patients but do not feel competent to discuss them at this time. As a basal anesthetic we have used avertin less and less until at present it is rarely employed. We obtain just as good, if not better, basal narcosis with some of the barbiturates. Also, with the advent of more powerful anesthetic agents, the need for it is absent.

This discussion will not include obstetric anesthesias, nor those for tonsillectomies. For the most part regionals and nerve blocks have been done for minor procedures, and, at other times, in some cases when we advise against a general anesthetic. From July 1, 1936 to date (November 15, 1937), we have administered a total of 1641 anesthetics in the operating room without an anesthetic death. Making up this total are:

| | |
|---|---|
| Cyclopropane | 807 |
| Spinal | 633 |
| Ether | 190 |
| $N_2O$ and Ether | 11 |

Prior to July, 1936 the order of frequency was just the opposite, with cyclopropane not being used and only an occasional spinal.

We pay particular attention to the preoperative condition and treatment of the patient. In this respect we work hand in hand with the medical and surgical staffs. "Postoperative morbidity and mortality may be reduced if the adverse factors which each patient present are duly evaluated and heeded. . . Due appreciation of the hazards presented by the patient's condition will affect choice of anesthesia, choice of

operation, preparedness for untoward events during and after operation, and, most of all, the preoperative treatment employed, and by these means will favorably influence the outcome." (Woodbridge). "Careful preparation of the patient . . . often turns a very poor risk into a fair or good one and saves days or weeks . . . in the subsequent convalescence. . . if not life itself." (Wells). So with this in mind we estimate the degree of risk presented by the patient. The scale ordinarily used for rating signs and symptoms are 1, 2, 3, 4. Thus "1" means Good Risk: nothing found in the patient's condition that adversely affects the risk; "2" means Fair Risk: one or more adverse factors are present, but are not serious; "3" means Poor Risk: prepare patient carefully for operation, choose the least operation that will give the needed surgical relief, and select the anesthetic drug and method with special regard to the patient's condition—this is, therefore, an unmistakable danger signal; "4" means that the patient is so seriously sick that death is likely unless the downward progress is quickly reversed.

In selecting an anesthetic agent to be used on a given case we have not tried to fit a patient to an anesthetic but rather have tried to select the anesthetic that would cause less deviation from normal in that individual case. There are many factors which may influence our choice of an anesthetic agent, but the chief of these must always be the safety of the patient and, to a lesser degree, the efficiency of the anesthesia. The criterion of choice is the end result of anesthesia and operation combined and not considerations concerning the anesthesia alone. In our practice the final selection of the anesthetic agent and method to be used rests with the anesthetist.

So, after a study of the preoperative preparation, condition of the patient and choice of operation, the anesthetic is chosen. We then call on the patient and discuss the anesthetic with him and try to allay as much fear over the coming ordeal as possible. Fear and the emotional condition have a very important bearing on the anesthetic. Some of the more frequent questions that we are asked are: "Are you sure I'll wake up all right?"; "Will I suffocate?"; "How long will it take me to go to sleep?"; and "Will I know when they are operating?" So, an ounce of reassurance, along with the preanesthetic medication, which will be discussed presently, goes a long way towards leaving a pleasant recollection of the way in which they were cared for, rather than one of distaste. After our talk with the patient we leave orders for the preanesthetic medication.

"Progress in making anesthesia safe for the patient is encouraging but the lack of progress in making the patient safe for anesthesia is disturbing. Modern anesthesia is quite as intimately concerned with the protection of the patient from mental discomfort in the preoperative period as it is with his protection from physical discomfort during actual surgical manipulation. . . Such protection involves a number of intricately related variable elements as age, fever, pain, emotional states, and toxemias. . . No single drug or combination of drugs can be suited to all cases. Experience in the use of any of these drugs, particularly with regard to the adjustment of dose and time factor, will result in increasing success. Routine prescribing without individualizing cannot be satisfactory. The most consistently good results are obtained when the various influencing factors are carefully weighed." (Alexander and Cullen).

At the completion of the operation we advise with the surgical staff as to the immediate postoperative treatment. In those cases that have had a spinal we direct the course of treatment for several hours, postoperatively. In our practice here we are able to make several calls on the patient after operation to note progress and to be on the lookout for any possible untoward reaction as a result of the anesthetic. These reactions are much rarer now with our present technique than they were in the "ether and nitrous oxide days." The responsibility of the anesthetist does not cease when the patient reacts, for untoward reactions may be manifest days or even weeks later in some small number of cases.

Thus far we have dealt with generalizations and now we come to a more detailed discussion. The two agents and methods that we have used most frequently in our cases, namely, cyclopropane and spinal anesthesia, will be considered.

The anesthetic properties of cyclopropane were discovered by Henderson and

Lucas of Toronto, but the first clinical investigation of this agent was that of Waters and his associates at the University of Wisconsin. Already it has firmly established itself as a valuable addition to the range of gaseous agents available for the anesthetist, and in those places where it is used it has increased in number of cases largely at the expense of other gases. It is a heavy, colorless gas possessing a sweetish odor. It is a cyclic hydrocarbon gas with the empirical formula $C_3H_6$. It is more powerful than both nitrous oxide and ethylene, being effective in approximately 15-20 per cent mixtures and being lethal in about 40 volumes per cent. For this reason, those who use it for the first time should do so with great caution. It has a wide margin of anesthesia without anoxemia.

In the usual anesthetic mixture it is without irritant effect upon the respiratory tract, but in high concentrations (50% or more) it is quite irritating and, if breathed in this concentration, may cause laryngospasm. Its toxicity is low, having little or no action on liver, kidneys or acid-base balance. Cyclopropane does not have the respiratory stimulating effect which is so evident with nitrous oxide and ethylene; and the fact that frequently the respiratory rate becomes considerably slower, or even that a period of apnea may develop soon after administration is begun, would tend to indicate that it may be a slight respiratory depressant. This phenomenon is more frequently noted when the patient has had a rather large dose of a respiratory depressant sedative such as morphine. It has been the observation of all who have worked with this gas, either clinically or experimentally, that the respiratory system always fails sometime before the circulatory system fails.

This property places cyclopropane in the group of safe anesthetics. It is inflammable and moderately explosive, so adequate precautions should be taken when it is used. The chief toxic effect appears to be a temporary disturbance of the heart, usually evident only under the deeper stages of anesthesia. The appearance during anesthesia of any change, such as marked decrease or increase in the pulse rate, or any irregularity not present before the anesthesia started, or any sudden drop in blood pressure, or narrowing of pulse pressure, should be a signal for immediate lightening of the anesthesia by increasing the oxygen percentage in the inhaled mixture. With this gas the warning sign of cyanosis is not present as it is with nitrous oxide or ethylene.

"The combination of quiet respiration, ease of induction, and potency, together with an adequate oxygen supply, makes this anesthetic suitable in almost any situation in which an inhalation anesthetic is desired. These factors, combined with a relatively low toxicity, leave very few contraindications to its use." (Sise, et al). Its advantages have been found to be most outstanding in situations where excess oxygen is of value, as thoracic surgery, hyperthyroidism, cardiac disease, anemias, debility and shock, in supplementing spinal anesthesia, and in short operations for which considerable relaxation is required, as in setting fractures. Of late we have been obtaining very good results in manual and instrumental obstetric deliveries as well as in cesarean operations.

When premedication is used, the amount of cyclopropane necessary to produce full anesthesia is reduced. Cyclopropane should be administered with oxygen in a closed circuit with efficient carbon dioxide absorption; the type of apparatus used is largely immaterial provided that flowmeters, capable of measuring small quantities of both gases, are fitted. In this connection the author has found such a method of anesthesia to be of distinct advantage, and in some few cases life saving in such conditions as shock, severe trauma, and other things where there may be disturbance of respiration. Such patients have been carried for as long as 45 minutes by artificial respiration until normal respiration was reestablished. This is easily done by the application of manual pressure to the rebreathing bag, 15-20 times per minute.

The technique of administration of cyclopropane is radically different from that of nitrous oxide and ethylene. With nitrous oxide or ethylene an attempt is made to administer as high a concentration of gas possible by flushing out repeatedly the machine and lungs in order to get rid of as much of the diluting nitrogen as possible. With these gases oxygen is added in as small an amount as possible, attempting to keep the patient reasonably free from an-

oxemia (and not always succeeding). On the other hand, with cyclopropane anesthesia, the patient is breathing an atmosphere very high in oxygen, to which only a sufficient amount of the anesthetic agent is added to induce and maintain anesthesia. With cyclopropane it is not necessary to flush out the lungs and machine in order to have sufficient oxygen in the system to prevent anoxemia. Induction of anesthesia is usually very rapid, requiring about 3-4 minutes. Romberger has described the following stages of anesthesia produced by cyclopropane: the induction stage, ending with the disappearance of the lid reflex; "moderate anesthesia" ending with the disappearance of the eyeball movement; and deep anesthesia.

Thus far in our use of cyclopropane we have employed the intratracheal method in about 2-3 per cent of our cases but with continued use we expect to employ this method more frequently. Such a method is especially advantageous in operations about the head. Besides this, it practically assures an unobstructed airway at all times, makes for better abdominal relaxation, and requires a slightly smaller amount of anesthetic to maintain anesthesia.

In a recent publication, Waters and his co-workers report fewer respiratory complications with this gas than with other general anesthetic agents. During 1933, 1934 and 1935, they administered it in 5889 cases out of a total of 12,349 anesthetics. It was by far the most commonly used single agent.

In our hands the use of cyclopropane has given us equally as good results as numerous other authors report and are in accord with the opinions that it represents another step towards the ideal anesthetic agent.

In a discussion of spinal anesthesia it is readily agreed that a controversial subject is being considered. As already mentioned, we have administered it in 633 cases in the past 16 months with such satisfactory results that we are strong advocates of its use; however, with certain reservations. These reservations are a proper and intelligent selection of cases, a meticulous technique and a knowledge of the fundamentals, agents and methods of spinal anesthesia. The administration of spinal anesthesia is technically simple. The ability to perform a lumbar puncture and inject an anesthetic solution does not qualify one to administer a spinal anesthesia to a human being.

At the last meeting of the Southern Surgical Association, Dr. Frank Lahey expressed the conviction that it is an extremely dangerous plan for the surgeon to give the spinal anesthetic and then turn the anesthesia over to a nurse or to an inexperienced man. He said, further, that no matter how well trained the man may be one may occasionally creep too high but the situation is well handled if in the hands of men who are competent to spot the paralysis early and use oxygen until the anesthesia wears off.

There is no question but that a number of surgeons like spinal. The condition of "abdominal silence" has been termed a "surgical paradise." There is little or no postoperative vomiting or distension, hence less strain on the suture line. Paralytic ileus practically does not occur. In our experience the patients can usually take a general diet about 24 hours sooner than they can after an inhalation type of anesthesia.

Spinal anesthesia may be employed for any operation below the diaphragm. It is indicated in the presence of pulmonary disease, as bronchitis, bronchiectasis, emphysema, active tuberculosis, asthma and diabetes. Since it seems to have less irritant effect on the kidneys, renal disease may indicate its use. Spinal should not be used in shock with hemorrhage, in septicemia or intestinal perforation. Lesions of the central nervous system are a positive contraindication.

The most popular agents in spinal anesthesia, in their probable order, are procaine, pontocaine, nupercaine and metycaine. There is very little difference in the toxicity ratio of these drugs, with nupercaine being considered the most toxic. These agents also vary as to duration of action, and, as given by Marvin, are procaine, one hour; metycaine, ninety minutes; pontocaine, two hours and nupercaine three hours. In our series of cases we have employed the pontocaine (formerly pantocaine) glucose method of Sise. The addition of glucose increases the specific gravity, thus making the solution more controllable by changes in the tilt of the table. In general we have found a dose of 8-12 mgms. of the 1 per cent pontocaine solution diluted to 1.5-2 cc.

with 10 per cent glucose to be effective for anesthesia of the perineum. For lower abdominal operations, 10-15 mgms., diluted to 3.5-4 cc. with glucose, has been used successfully; and in the upper abdomen 15-18 mgms., diluted to 4-4.5 cc. with glucose.

To make the injection, the patient is placed in the lateral decubitus position and the skin and interspinous region of the third or the fourth lumbar space are infiltrated with a solution of pontocaine and glucose to which a vaso-constrictor, such as epinephrine, has been added. Spinal puncture is made with a needle, preferably not larger than a size 22 as this has an important bearing on the occurrence of postoperative headache.

After the stilet has been withdrawn, a 5 cc. syringe, containing the desired amount of glucose and pontocaine, is attached to the needle. It is injected at the rate of 0.5 cc. per second. Immediately after injection, the patient is placed on his back. For abdominal anesthesia the table is tilted to 10 degrees Trendelenburg position, but the patient's head is flexed forward on the chest so as to place it higher than the shoulders. The midthoracic region thus becomes the lowermost part of the spine, and the anesthetic solution gravitates toward this part. As soon as the anesthesia reaches the desired spinal level, the table is leveled in order to check the effect of gravity. Leveling of the table is usually indicated in 3-5 minutes. After twenty minutes it is considered that the drug is no longer susceptible to movement by gravity and from this time on the Trendelenburg position may be used if desirable.

After administration of a spinal we take pulse and blood pressure readings, and observe the action of the intercostal muscles at not longer than five minute intervals during the operation. The anesthetist should also be constantly on the alert for the possible appearance of any respiratory embarrassment or cyanosis. In the event they appear the immediate administration of oxygen is indicated; if necessary, by artificial respiration by the method already described.

Any failures to obtain anesthesia we have attributed to faulty technique in making the injection, but our failures have been less than 0.5 per cent.

If the blood pressure approaches a fall of 40 per cent of its preanesthetic level, we give 1 cc. of 1:2600 epinephrine intramuscularly. Nausea occurs in 10-15 per cent of the cases and vomiting in less than 5 per cent, and the greatest incidence is associated with operations on the upper part of the abdomen. So far, postoperative headache has been of very minor importance in our series. We feel that the giving of some barbituric acid derivative to every patient preoperatively that is to receive a spinal is of importance in offsetting a possible reaction from the cocaine derivative.

In closing I should like to leave this thought so ably expressed by Dr. Ralph M. Waters: "The knowledge and skill of the individual who administers an anesthetic drug are far more important than is the agent which he administers or the technique by which he administers it. A patient suffering from an injury to the brain enters the average hospital once in twenty days, whereas twenty patients in the average hospital have the brain and many other organs injured every day with anesthesia." No one agent or method will revolutionize anesthesia but only "the quality of the physician's care and skill" will do that.

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# PYELONEPHRITIS OF PREGNANCY*

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Pyelonephritis of pregnancy is of frequent occurrence; much more than we realize, only those cases of fever, rigors and kidney tenderness of such severity that they become bed-ridden are classified as pyelonephritis. Many cases of vague malaise and low grade temperature often are explained by the attending physician as an occurrence common to pregnancy, when a careful microscopic examination of the urine will reveal the presence of many pus cells. All routine urine examinations should include a microscopic, and the finding of pus should be checked immediately by obtaining a catheterized specimen. Many cases discovered in this stage, if immediate appropriate treatment is begun, will respond to medical treatment.

## ETIOLOGY

The predisposing cause of over 50 per cent of all kidney infection is stasis. This condition of stasis in the kidney during pregnancy is a physiologic phenomenon and has been a much discussed problem. Since the discovery of intravenous urography we have been in a much better position to understand the problems before us. Pyelograms can be made with no disturbance of the urinary tract or the gravid uterus.

Duncan and Seng showed that ureterectasis and pyelectasis are normal occurrences in pregnancy and begin to appear as early as the sixth week. They have also shown that the right side is more frequently involved than the left.

Hofbauher in 1928 showed by histologic methods that there were hypertrophy and hyperplasia of the muscle fibers of the ureter and fibrous tissue of the ureteral sheath. These findings were in keeping with the development of the lower uterine segment. Other investigations have failed to find evidence of obstruction in the lower ureter, such as a hang produced by a bulb catheter, etc.

Baird in 1932 thought there was an atony of the upper urinary tract peculiar to pregnancy which was of endocrine origin, in as much as there is a marked change in the pyelogram in a few hours following delivery.

Lewis and Baker in 1934, studying the urinary tract in a fairly large series of normal pregnancy, came to the conclusion, as have Braash, Crabtree and others, that the enlarging uterus causes pressure on the ureter at the bony pelvic brim. They explain the right-sided preponderance as due to the cushioning effect of the sigmoid on the left side.

Though the predisposing factors may be of academic importance for discussion, the fact of upper urinary tract stasis is conceded by all. Where there is stasis there is usually infection. Especially is this true if there has been an old infection or an active focus of infection. This may be an old pyelitis of childhood which has not manifested itself due to adequate drainage prior to pregnancy. Distance points of infection, as teeth, tonsils, sinus, constipation, gallbladder disease or appendicitis, all may be predisposing factors. Chronic endocervicitis or erosion of the cervix are prone to become active in pregnancy due to the increased vascularity of the uterus, the route of infection being either blood stream or lymphatics, or both.

The colon bacillus has been found to be the infecting organism in about 90 per cent of the cases. The others are usually the staphylococcus or the streptococcus.

## SYMPTOMS

As previously stated, there may be no symptoms relative to stasis of the urinary tract, and the cases that are not infected are classified as a physiologic phenomenon of pregnancy. Fortunately, the largest per cent fall under this classification.

Those presenting symptoms may be divided into mild and severe. The mild symptoms are those of indefinite localization; and often are clinically diagnosed as malaria, constipation, chronic appendicitis, or chronic pelvic inflammatory disease. Only by routine examination of the urine and the constant finding of pus in catheterized specimens are we able to arrive at a correct diagnosis.

The severe cases present classical symptoms and are easily diagnosed. There are pains or tenderness over the right or left kidney which may be referred down the course of the ureter, the pain often localiz-

*Read before the Northwestern Division of the Association, Russellville, September 16, 1937.

ing in the lower right quadrant of the abdomen, caused by blockage of the ureter as it crosses the pelvic brim. Due to the close proximity of the appendix, differential diagnosis is often a difficult problem. Rigors, fever and sweats are common occurrences, sometimes assuming alarming severity. Abdominal distention may be severe and misleading. There is danger of death of the foetus and abortion, with all of its complications, as well as severe damage to the kidney parenchyma. The case may even terminate ultimately in the loss of a kidney.

TREATMENT

Treatment has been a much discussed problem, both by urologists and obstetricians. No doubt many cases can be carried through pregnancy without difficulty if proper prophylactic precautions and treatment are carried out. Patients, upon first consulting the obstetrician, should be questioned particularly regarding previous kidney infections. In those giving such a history a most careful check should be maintained on the urine through pregnancy. Those showing pus in the urine and no other clinical symptoms are controlled usually by medication, proper hygiene, etc.

Those cases presenting mild symptoms, of pain in the back with tenderness over the kidney area and low grade temperature of an irregular course, with the constant finding of pus in the urine, should be under continuing observation and should have a complete urologic study. These studies, since the advent of intravenous urography, need not be approached with such trepidation as formerly. Diadrast is now obtained in ampoules of 20 cc. size and causes no discomfort in administration. Its contraindications are idiosyncrasy to iodine and high nitrogen retention in the blood. The degree of dilatation in the upper urinary tract can be determined easily; and anomalies and pathology of the ureter detected. Patients requiring treatment, as determined by the above procedure, can receive it, whether pregnant or non-pregnant. Cystoscopic treatment, carefully and gently done, need not endanger the pregnancy. I have seen cases receive cystoscopic treatments throughout the entire term of pregnancy without symptoms of threatened abortion. However, routine cystoscopic treatment for pyuria alone is of questionable value since the drainage from the ureter is blocked as soon as the catheter is withdrawn. All patients should be prepared by a preliminary opiate and local anesthesia in the bladder, as, for example, 2 per cent metycaine.

Following cystoscopy, rectal suppositories of belladonna and opium are inserted every six hours until the reaction is over. Patients in the later months of pregnancy should wear an obstetric support and spend several hours of the day in bed. Further, they should sleep at night upon a bed which has a firm mattress, with the foot of the bed elevated 14 inches, using no pillow or only a thin one. This position allows the enlarging uterus to push upward the abdominal contents, including the kidney, which, in turn, stretches the elongated and kinked ureter, thus promoting better emptying of the organ by its own peristaltic action. The changing of position from back to left side aids by relieving the pressure on the ureter at the pelvic brim. The discomfort of this position is soon overcome and patients are able to continue its use until delivery.

In patients with severe infection, viz., rigor, fever, sweats, prostration and nausea and vomiting, drainage is of paramount importance. This should be obtained first by indwelling ureteral catheters. Pugh and others have advocated catheters of large size, but No. 6F x-ray catheters have given sufficient drainage in my hands, if the symptoms are to be relieved by this method. The larger catheters may produce damage to the ureter by too great pressure on the inflamed mucosa of the ureter.

Due to the distortion of the ureter by elongation and kinks, it may be impossible to pass a ureteral catheter all the way into the kidney pelvis, but, if a whistle tip catheter is passed the pelvis brim where the major obstruction is located, often sufficient drainage may be obtained. These catheters may be left in place for days without apparent damage to the ureter. Upon the subsidence of temperature they are removed. The elevated position of the foot of the bed is continued for the rest of the pregnancy in order to promote drainage, as previously stated. I have discontinued irrigation of the catheters unless they cease to drain. The ends of the protruding catheters make it very difficult to maintain strict asepsis in changing bed linens, in using the bed pan, etc. One is apt to inject

more bacteria than are already present; and frequently the injected antiseptic is irritating to the already inflamed mucous membrane of the ureter and kidney pelvis. If drainage is being accomplished, good results will be obtained. Why, then, run the danger of additional infection?

Rarely is surgery of the kidney indicated. In all cases of temperature not controlled by drainage of a ureteral catheter I am firmly convinced the pregnancy should be terminated.

### MEDICAL TREATMENT

Medical treatment of these patients is often a problem. The colon bacillus infection, in the majority of cases, can be controlled by lowering the *ph* of the urine to 5.5 or 4.5. This may be done by the use of large doses of ammonium chloride, in the form of enteric coated tablets, methenamine by mouth, and the intravenous use of methenamine in the form of uritone. As high as 60 to 90 grains daily are given for short periods. Mandelic acid preparations are usually well tolerated by the stomach and will reduce the *ph* of the urine to the required degree without the assistance of other acidulating drugs. However, should this not be true, combined with ammoium chloride, the required degree of acidity is easily obtained. The use of a ketogenic diet may be of assistance in lowering the *ph* of the urine. Unfortunately there is already a gastric disturbance in these patients and they are unable to retain a diet so rich in fats.

The new and popular drug, sulfanilamide, may be used in cases of coccal infections. Its administration, however, should be attended by a very close watch for such symptoms as rash, rise of temperature, severe headache and blood changes. The blood should be checked frequently. In no case have I used over 40 grains a day, and for no longer than a week's duration even in those who tolerate the drug well. The majority of the patients were unable to take the drug this long. It is a dangerous preparation and must be used with care. In a few instances the results were almost like magic. Patients confined to bed tolerate sulfanilamide better than do others. Alkalies seem to increase its efficiency. Sulfates are to be avoided.

### CONCLUSIONS

1. Pyelonephritis of pregnancy occurs more frequently than recognized.

2. Drainage by posture and ureteral catheters offers the best method of relief.

3. In colon bacillus infections methenamine and acidulating drugs should be given in large doses until the *ph* of urine is below 5.5.

4. Failure to obtain relief in severe cases makes termination of pregnancy necessary.

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## GENERAL MEDICINE AND THE EYE

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The specialty of ophthalmology has been developed to a high degree. In all likelihood the problems of this branch of medicine have been more fully solved than those of any other. Also, the ophthalmologist can see a great part of what he is doing and of the pathology present, which makes for more certain diagnosis and prognosis. The internist, as you will realize, is not quite so fortunate. With this perfection of skill, however, one must be careful not to become so technical, so independent in his own methods, that he is apt to lose sight of the fact that he is treating a complete, intricate machine of which his particular part is only a cog, even though a very important one.

The general practitioner, the internist, and especially the neurologist, can be greatly benefited and helped by consultation with the ophthalmologist. The ophthalmologist, however, in a very large proportion of cases, is absolutely helpless without the aid of the man in general medicine. I make no distinction between general practitioners and the internist, as the latter may be considered as a general practitioner who has eliminated surgery from his practice.

The relationship between ophthalmologist and neurologist is particularly striking. A very large proportion of cases of brain tumors seen by the neuro-surgeon are first seen and diagnosed by the ophthalmologist. Unfortunately, these cases are apt to slip by unnoticed unless a careful systematic

routine of examination is maintained. In all cases of headaches, unexplained by refractive errors or muscle imbalance, careful ophthalmoscopic examination and recording of the visual fields must be made before passing the patient along for further examination and study. Especially are we inclined to become careless in a patient which we may have observed for a long time, a refractive case, for example, where the patient may develop an intracranial growth and the symptoms be easily ignored or misinterpreted. It is well to remember that, when a patient complains of a certain symptom, there is always some basis in fact.

In skull injuries, the ophthalmologist naturally plays an important part, as the observation of the eye and eyegrounds often indicate to the surgeon the necessity for surgical interference and even point to the location. To illustrate, I will relate a case once detailed by a former preceptor. A young lady received an injury while riding in a public conveyance. She was unconscious for several days. On regaining consciousness she complained of not being able to see. The examination of her eyegrounds revealed a normal disc and retina. Her vision was limited to perception of light, not sufficient to outline her fields, but her field for projection was limited to the right side of either eye. A diagnosis of cortical blindness due to hemorrhage in the left occipital region was suggested and corroborated by exploratory operation, resulting in complete restoration of vision.

Nystagmus is a condition which puzzles many. It may be hereditary, which would include that due to albinism. Individuals have been known who could produce nystagmus at will. It may result from marked bilateral visual defect originating very early in life. Nystagmus is usually divided into two special types, namely, ocular nystagmus and vestibular nystagmus. Ocular nystagmus has a special character in that both movements of the eyes occur with equal rapidity and amplitude of excursion and are never rotary. Vestibular nystagmus is distinguished by rhythmical movements of unequal velocity, a quick component in one direction and a slow in the other. Nystagmus may be produced by various conditions, as alcohol, tobacco, intestinal intoxication, seasickness, brain abscess, brain tumor, meningitis, skull fractures, mastoiditis, labyrinthine disease, disseminate sclerosis, syringomyelia, Friedrick's ataxia and cerebellar lesions. Cerebral lesions, per se, do not give rise to nystagmus.

Occupational nystagmus is familiar to all. Certain facts regarding its causation are clear. It is generally agreed that in miners, where it is feasible to use naked lights instead of the Davy lamps, the condition is almost unknown. It is interesting to note that a much larger proportion of miners with nystagmus are blonds.

Color of the conjunctiva may be white or pearly, as in anemia or tuberculosis, yellow as in icterus, or blue as in thinning of the sclera associated with brittle bones. Ecchymoses or hemorrhages in the conjunctiva, when not associated with injury, generally mean, in adult life, focal infection or arteriosclerosis or unusually fragile vessel walls. Phlyctenules or small efflorescences of the conjunctiva, usually on or close to the corneal margin, are held by some to be due to tuberculosis. Children affected by this condition have severe photophobia and are usually improperly fed. Fresh air and sunshine, with plenty of milk and cod liver oil, with abstinence from sweets, usually produce results.

Exophthalmus, if not associated with a local disease of the orbit, such as trauma, hemorrhage into the orbit, phlegmon, periostitis, emphysema, or involvement of one of the adjacent sinuses, is most usually met in Basedow's disease. With this, of course, we have the associated Graefe lid lag sign and weakness of convergence. One of the outstanding signs of a patient suffering from a weakness of convergence is that of sleepiness during close work.

Corneal infiltration or ulceration may be due to various causes. We must always make a search of teeth, tonsils, prostate, gallbladder and gastro-intestinal tract. The dense, diffuse, deep infiltration of interstitial keratitis is usually due to congenital syphilis. The associated signs of Hutchinson's teeth, etc., are seldom lacking. A peculiar branching type of infiltration of the cornea, known as dendritic keratitis, is due to chronic malaria and clears up readily under quinine therapy.

Diplopia or double vision is practically always, with a very few exceptions, due to some degree of muscle imbalance, which,

however, may not be sufficiently marked to show itself as an obvious squint, and may be permanent or periodic. In children, diplopia is generally the manifestation of some dysfunction of the ocular coordinating mechanism due to refractive or fusing errors. In adults, on the other hand, and especially in persons of middle or post middle age, who have never before had any ocular troubles, the sudden occurrence of diplopia is almost always an indication of some degree of ocular paralysis; either as the result of some grave brain lesion, or a disease of the general nervous system, or the advance of arteriosclerosis.

A knowledge of the pupillary reactions is extremely valuable because of the intimate connection of the iris with the sympathetic and the cerebral nervous systems. The size, behavior and shape of the pupil furnish extremely valuable data in health and disease as to the state of the body. In health the shape of the pupil is almost perfectly circular. Distortions are practically always due to local mechanical causes.

Mydriasis or dilatation of the pupils is caused by any condition which (a) paralyzes either the central or peripheral endings of the oculomotor nerve, (b) inhibits the function of the third nerve through the brain, or (c) stimulates the sympathetics. Examples of the first kind are tumors of the brain, or along the third nerve; toxins of ocular infections, such as diphtheria, scarlatina, etc.; and the action of certain drugs, such as atropin. In the second group are fevers, comatose conditions, and excited brain states. Of the third variety are pain, sensory irritation, and abdominal diseases.

Myosis or contraction of the pupil, on the other hand, results from influences which (a) irritate the third nerve, or (b) depress the sympathetics. Photophobia, from whatever cause, meningitis and certain drugs, such as eserin, are instances of the former; spinal diseases, aneurism and opium of the latter.

Normally the two pupils are equal in size. Inequality is practically always due to interruption of the motor-oculi nerve path, either central or peripheral. Central causes are brain tumors, brain syphilis, tuberculosis of the brain, and the like. Peripheral causes are injuries to the eye and toxins from acute infections. Occasionally one pupil is dilated because of pressure on the sympathetics due to aneurism. It must not be forgotten that diseases which interfere with light stimulus of the retina, such as cataract, optic atrophy, etc., may produce unilateral dilatation.

In health the pupil reacts with great quickness and sensitiveness to light and to sensory stimulus. A sluggish or immobile pupil may, of course, be due to adhesions of the iris to the lens or cornea, but usually it is a sign of paralysis of the third nerve, central or peripheral. Most of these cases are those of cerebral syphilis.

The Argyll Robertson pupil, in which the pupil contracts to accommodation but not to light, occurs in tabes and general paresis. It is so rare in other conditions that it is a very important diagnostic finding.

Hippus, a periodic contraction and expansion of the pupils, is seen in psychic diseases, such as mania and hysteria. It must be remembered, also, that there are a few conditions in which the pupil will respond to light even though the patient cannot see, as in uremic blindness, and the blindness of post-basic meningitis and puerperal amaurosis. These conditions are supposed to be due to the effect of toxins on the visual cortex.

Primary inflammation of the iris, when not due to local causes, may result from syphilis, gonorrhea, acute infectious diseases; disorders of metabolism, such as diabetes, gout and hyperthyroidism; and local infection and tuberculosis.

Every condition, when the cornea and iris are involved, is not necessarily a limited affection of these tissues. I refer to acute congestive glaucoma. In this disease the general practitioner is often the first called, as the onset is usually so sudden and the pain so severe that it cannot be localized by the patient, who sends for the family doctor. May I impress that you carefully examine the eyes to exclude glaucoma whenever you see a case of acute severe headache accompanied by nausea and vomiting. Timely treatment for the reduction of tension means everything in the restoration of vision, as well as permanent relief of symptoms.

The causes of retinal hemorrhages are many and varied. General arteriosclerosis is nearly always evidenced by changes in the retinal vessels, and consequently is often first discovered by the ophthalmologist.

The first change is an increased brightness in the retinal reflex, often termed the "copper wire" appearance. Compression of the veins when crossed by the artery is next observed. The lumen of the artery ceases to be of uniform caliber and shows narrowings of its course. The arteries become tortuous, retinal hemorrhages occur, and white exudates, usually taking the form of white dots or spots, are found. When the exudates are present in large and increasing numbers, the prognosis is poor.

In renal retinitis there is a more distinctive ophthalmoscopic appearance. It is always bilateral, and the patient seldom lives over two years.

In pernicious anemia the hemorrhages are usually flame-shaped. There are few patients with myelogenous leukemia who do not show retinal changes at some stage, first manifested by enlargement of the veins, sometimes the arteries; later by hemorrhages, either deep or superficial, followed by a general leucocytic infiltration of the retina and choroid.

Hysterical blindness can generally be determined by the visual fields which are usually tubular or spiral shaped. It must be born in mind that a hysterical condition is often superimposed on some organic disease.

In disseminate sclerosis the loss of sight precedes the atrophic changes in the temporal aspect of the discs. The atrophy never becomes complete. Alternate loss of sight and recovery may occur several times before changes in the disc can be seen. Defects in the fields are usually central and may be for colors or complete. When peripheral they are generally irregular.

This discussion is of necessity very general, and, of course, only skims the surface of the subject under inspection. It should serve, I hope, to impress upon internist, surgeon and ophthalmologist, their interdependence in arriving at the diagnosis, prognosis and treatment of the above outlined conditions and many others too numerous to mention in a short paper of this type, given to a group of physicians engaged in various types of practice.

"The popular concept of the menopause, as is true of all aspects of the phenomenon of menstruation, has been based on folklore rather than on scientific fact, of which there was little until recent years."—*Novak.*

# SYPHILIS*

## SOME OBSERVATIONS AND CONCLUSIONS DRAWN FROM THE ADMINISTRATION OF 120,600 ANTI-SYPHILITIC TREATMENTS TO 4,560 PATIENTS

By
JARRATT P. ROBERTSON, M. D.
Birmingham, Ala.

### DRUGS

The drugs employed in the treatment of syphilis are the arsenicals, bismuth, mercury and potassium iodide. On a basis of ten, their spirochetic value is as follows: Arsenicals 10, bismuth 7, mercury 4, and potassium iodide 0. Before the value of an antisyphilitic drug can be determined, it must have been employed in from one to two hundred cases of different types of syphilis, over a period of one or two years. At this time, only, an opinion can be rendered as to its value. A final positive statement cannot be given until it has been employed in thousands of cases and carefully checked over a period of years. Moore states that there is only one drug that fills these requirements at the present time, namely, arsphenamine or "606." The private practitioner does well to steer clear of all new drugs in the treatment of syphilis until they have been checked and accepted by the Council on Pharmacy and Chemistry of The American Medical Association.

### ARSENICALS

The arsenical group is composed of arsphenamine, mapharsen, neoarsphenamine, silver arsphenamine, sulpharsphenamine, bismarsen, and tryparsamide. Arsphenamine, or what was formerly known as "606," still remains the most efficient drug of the arsenical group in the treatment of early syphilis despite technical difficulties of administration that have decreased its popularity.

CHART 2*
COMPARATIVE EFFECT OF ARSPHENAMINE AND NEOARSPHENAMINE IN EARLY SYPHILIS
AVERAGE TREATMENT AND TIME NECESSARY FOR DISAPPEARANCE OF VISIBLE LESIONS

| | Cases | Average Total Dosage Necessary, Grams | Average Number of Injections Necessary | Average Number of Days |
|---|---|---|---|---|
| Arsphenamine | 32 | 1.3 | 2.7 | 14 |
| Neoarsphenamine | 61 | 3.8 | 5.8 | 23 |

From Cannon and after Moore.

*Chart 1 appeared in the first installment.

*Second of three installments. The first appeared in the February number.

From the Department of Syphilis, Hillman Hospital, Birmingham.

Read before the Morgan County Medical Society, Decatur, February 4, 1937.

The next most efficient of the group is probably mapharsen. This is a new drug, only recently introduced, and has not been employed over a sufficient length of time to permit of a positive statement concerning its efficiency. In early syphilis mapharsen is probably more efficient than neoarsphenamine in causing the disappearance of the spirochete, and healing of mucocutaneous lesions, and is as simple to administer as the latter. I have never employed silver arsphenamine, but those who have used it speak well of its efficiency. It has one disadvantage: if used over a long period of time, there may occur a discoloration of the skin from the silver. Neoarsphenamine is the most extensively used of the arsenical group, but is by no means the most efficient. The ease of administration makes for the popularity of neoarsphenamine. Sulpharsphenamine is a complex derivative of neoarsphenamine that is very soluble in water, and is given intramuscularly. It is employed extensively in the treatment of syphilis in children, but is toxic to adults and prone to produce in them an arsenical dermatitis. For that reason it is only recommended for children. Bismarsen is a compound of bismuth and arsenic, given intramuscularly and employed in adults where cardiovascular and other types of syphilis make the intravenous use of arsenicals extremely dangerous, and in very fat individuals, where the veins are extremely hard to locate. Its slow action decreases its efficiency in early syphilis. Tryparsamide is a pentavalent rather than a trivalent arsenic. It is employed only in the treatment of neurosyphilis. It is extremely low in toxicity and can be administered by intravenous or intramuscular route. The former is preferable. Visual damage is the only complication to be feared from tryparsamide.

The efficiency of arsenical preparations in the treatment of syphilis in man is estimated, first, by the rapidity with which the spirochetes disappear from the primary lesions; second, by the healing of the external lesions; third, by their ability to reverse the blood Wassermann in early syphilis; fourth, by their toxicity and the ability of patients to tolerate a given drug; and, fifth, by the ultimate clinical outcome of the patient treated. Moore estimates that eight injections of arsphenamine (606) will accomplish as much in reversing the blood Wassermann in early syphilis as will ten injections of neoarsphenamine, plus an equal number of bismuth.

CHART 3

COMPARATIVE EFFECT OF ONE COURSE OF ARSPHENAMINE OR NEOARSPHENAMINE ON THE BLOOD WASSERMANN IN EARLY SYPHILIS

| | | Cases Of Seropositive Primary Or Early Secondary Syphilis | Per Cent With Blood Wassermann At End Of First Course | | |
|---|---|---|---|---|---|
| | | | Negative | Incompletely Positive | Positive |
| Arsphenamine--No Mercury or Bismuth (Moore and Kemp) | 6 injections (1.8-2.4 gms.) | 434 | 68.6 | 17.2 | 14.0 |
| | 8 injections (2.4-3.2 gms.) | 227 | 81.5 | 7.4 | 10.5 |
| Neoarsphenamine Plus Mercury or Bismuth (Harrison) | 10 injections (6.3 gms.) average of 7 gms. mercury | 129 | 74.4 | 13.9 | 11.6 |
| | 10 injections (6.3 gms. average of 3.6 gms. bismuth | 114 | 74.5 | 20.1 | 5.4 |

From Moore.

With either system of treatment, from 75 to 85 per cent of the patients with early syphilis will have a negative blood Wassermann at the end of the first course of treatment.

In early syphilis, the first injection of the arsenical is usually followed by a chill and an elevation of temperature, 100 to 104 degrees. This is followed by a generalized aching, often accompanied by nausea, vomiting and diarrhea. At times, if a secondary rash is present, it is intensified. The administration of the arsenicals in the seropositive primary stage may be followed in from 24 to 48 hours by a profuse secondary syphilitic rash. The patient with early syphilis should be warned to expect these reactions following the first injection. In latent syphilis a febrile constitutional reaction may occur following the first injection. It is of little importance except in patients with gumma of the larynx, in cardiovascular syphilis, and in patients with central nervous system syphilis. The reaction in early syphilis is spoken of as a Herxheimer reaction, and in latent syphilis as therapeutic shock. The avoidance of these reactions in patients may mean the saving of a life. The patient with a gumma of the larynx may develop an acute swelling, necessitating an emergency tracheotomy. In cardio-

vascular syphilis, the reaction may be followed by sudden death from coronary occlusion or rupture of an aneurysm. In neurosyphilis, sudden edema and round cell infiltration may cause cerebral hemorrhage or thrombosis.

The reactions can be avoided or minimized in acute syphilis if treatment is begun with small doses of the arsenicals at frequent intervals; in cardiovascular and central nervous system syphilis, if a preparatory course of one of the heavy metals and potassium iodide proceeds the administration of the arsenicals.

Most patients complain of the odor of the arsenicals. This can be prevented by the simple practice of having the patient hold the nose and breathe through the mouth while the injection is being given. The arsenicals should always be administered with the patient in the reclining position, given slowly except mapharsen and tryparsamide, taking from 4 to 7 minutes to give an injection. Speed shock does not seem to occur when tryparsamide is used. If mapharsen is given slowly there occurs an aching of the arm, probably from spasm of the blood vessel, that persists from a few minutes to four hours. This does not occur if the drug is injected rapidly. Mapharsen does not seem to be accompanied by the speed shock that occurs with the rapid injection of arsphenamine and neoarsphenamine. The slow administration of the drugs reduces the nausea, vomiting and headache, and the delayed reactions that accompany their use. Patients should come for treatment with an empty stomach, and, where possible, return home at once and lie down for a few hours. The bowels should be moved the night before with a mild purgative. At times, changing from the arsenical prepared by one company to that of another may prevent reactions.

Nitritoid crisis or shock during the administration of the drug is to be watched for and avoided. It is characterized by a sudden fall in blood pressure, thready pulse, cold clammy skin, cramp-like pains in the abdomen, and backache. The patient is alarmed and feels that death is near; indeed, death at times does occur. It is most frequently due to the rapid injection of arsphenamine and neoarsphenamine. It is prevented by the slow injection of the drug; at the first indication of the reaction, the injection should be discontinued. The treatment is the same as for shock, plus the administration of adrenalin. Following such a reaction, the arsenicals should be administered very cautiously and ½ cc. of adrenalin given before the injection. An examination of the cardiovascular system should always proceed the administration of antisyphilitic treatment.

Arsenical dermatitis may follow the use of all the arsenicals except tryparsamide. I have never observed a dermatitis due primarily to tryparsamide, but have observed a mild dermatitis in a patient given a minute dose of tryparsamide that had previously had a severe dermatitis from neoarsphenamine. The syphilitic patient under treatment is not immune but is probably more susceptible to all forms of dermatitis.

Arsenical dermatitis is usually generalized, and accompanied by itching, a rash, and scaling of the skin. It is associated with general constitutional symptoms and evidence of visceral damage. In the severe case it may proceed to the exfoliative state. It reoccurs following treatment with all arsenicals except tryparsamide. The patient should always be questioned before each injection in regard to itching, scaling, or rash of the skin. By observing this precaution, the complication can be avoided in a large percentage of cases. The interval between the rash and treatment varies from a few hours to two or three weeks, usually occurring in four to six days. It tends to appear early, usually during the first course of treatment. Arsphenamine, neoarsphenamine, mapharsen and bismarsen are responsible in the lessening order of frequency for its appearance. In severe cases, the patient will always be sensitive to all the above arsenicals. In mild cases, in two to four months following subsidence of all symptoms, sensitiveness to the drug can be tested. To do this, select a different drug from the one causing the dermatitis and give intravenously from 1/50 to 1/100 of the normal dose. If this is followed by an itching and a reaction far in excess of the dose employed, then the idea of arsenical therapy must be abandoned. If such a reaction does occur, then the dose may be cautiously increased until the normal dose is reached or such a reaction does occur.

The treatment of arsenical dermatitis is unsatisfactory; therefore it is important to

observe all precautions possible to prevent its occurrence, and, if it does occur, to detect it at once in order not to intensify it by the administration of additional arsenic.

The patient with an arsenical dermatitis should be placed in bed, fluids forced, given a bland diet, and bowels kept open with a saline cathartic. The gowns and sheets should be replaced by clean ones (sterile where possible) every six to twelve hours. The itching is controlled by sterile olive oil baths, and other soothing oily applications. To areas that itch severely, calamine lotion may be applied. A warm soda bicarbonate bath may be employed night and morning to remove the crusts.

Calcium gluconate in 1 gm. doses is given intravenously, once or twice a day depending upon the severity of the case. This is continued until definite improvement occurs. Death may occur in severe cases. I have never observed a death from arsenical dermatitis. As soon as the dermatitis subsides, antisyphilitic treatment can be resumed with bismuth, and potassium iodide.

Jaundice, at times, is a complication of arsenical therapy. It may vary from a mild symptomless discoloration to fatal acute yellow atrophy. The jaundice is not always due to the antisyphilitic therapy; the patient remains heir to all forms of jaundice, as well as jaundice from his syphilis.

Arsenical therapy is discontinued during the jaundice stage. If the patient has early syphilis, treatment is continued with bismuth and postassium iodide. In late syphilis treatment is interrupted until the jaundice subsides. Three months after disappearance of the jaundice arsphenamine therapy can be resumed, starting cautiously with very small doses. In most instances it can be increased to a normal dose.

The only reaction feared from tryparsamide therapy is damage to the optic nerve. This is first noted as a dazzling or shimmering before the eyes. It is increased in bright lights and decreased in dim lights. Objects have an indistinct or blurred outline.

Examination of the eyegrounds, and charting of the visual fields, should always proceed tryparsamide therapy. If optic atrophy is present, the patient is not a suitable subject for tryparsamide.

Damage to the optic nerve usually occurs early in treatment. If the patient tolerates ten or twelve doses of tryparsamide without reaction, it need not be feared at a later date. At the first indication of optic nerve damage, if the treatment is discontinued, the patient will recover with only a decrease in the visual field. If definite damage to the optic nerve occurs from tryparsamide, then all future tryparsamide therapy is out of the question.

### BISMUTH

In the past few years, bismuth has largely replaced mercury in the treatment of syphilis. It is more efficient, less toxic, and accompanied by less reaction. There are today numerous preparations of bismuth on the market. They can be divided roughly into the soluble and the insoluble. The soluble is administered once a week. It is generally agreed, by the majority of syphilologists and from clinical experience, that bismuth salicylate is the most efficient bismuth for routine use. It is administered deep in the gluteal muscle once a week. If it is injected in the upper outer quadrant of the muscle, with the patient flat on the abdomen and the toes turned in, and massaged from two to five minutes, little if any local pain or systemic reaction accompanies its use.

Bismuth will cause a reversal of the blood Wassermann, but not as promptly as will the arsenicals. Infectious clinical and serologic relapses are more common in patients treated with bismuth alone than in those that receive arsenicals. It is indicated in those patients whose physical condition contraindicates the use of arsenical therapy, in those patients who have developed an arsenical dermatitis, and as an adjunct to arsenical therapy.

At times, a stomatitis develops from the use of bismuth, but very seldom in comparison to its occurrence where mercury is employed. Many patients that have received a large amount of bismuth show a black line around the gums, and on the inside of the cheeks. It does seem to carry with it a very serious significance in regard to the patient's general health. I have seen numerous such patients continued on treatment without an increase in symptoms. Bismuth irritates the kidneys, but much less than mercury. Patients with nephritis should be given bismuth very cautiously. The urine should be examined at weekly intervals to detect evidence of kidney damage before it is extensive enough to become of

serious importance. Dermatitis may occur from bismuth, but very rarely. I have encountered it in one patient only.

MERCURY

At the present time, bismuth has practically replaced mercury in the treatment of syphilis. Time alone will tell if this was a wise choice. Mercury is more toxic and productive of many more serious complications than bismuth. The main complications accompanying its use are stomatitis, gastro-intestinal disturbances and renal damage. In only the exceptional cases do I employ mercury. It is probably best administered by inunction. This is messy and disagreeable to the patients, but efficient. If not administered in this manner, it may be given intravenously or intramuscularly. Intravenous administration requires a daily treatment and is expensive to the patients. The intramuscular use of mercury salicylate is efficient but must be closely watched to prevent severe complications.

IODIDES

The present feeling is that the iodides have no direct effect upon the spirochete, but do probably in some way aid the other antisyphilitic drugs in penetrating walled off foci of infection. The lesions of benign latent syphilis, cardiovascular and neurosyphilis seem to be relieved and to heal more rapidly where the iodides are employed with the other antisyphilitic drugs. Nothing is gained by the intravenous use of the iodides. The saturated solution administered by mouth is as efficient as any of the more highly flavored and colored preparations. The dose should be increased until the patient is taking from fifteen to forty-five grains three times a day, preferably the latter.

(To be continued)

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Massive atelectasis is more common than generally recognized.

It is essentially a unilateral condition, more often on the left.

It presents a characteristic picture and as a rule is easily diagnosed.

It is often confused with pneumonia and effusion.

It is frequently due to tuberculosis.

It runs a relatively benign course.

Acute cases are treated by rolling the patient on the opposite side, bronchoscopic examination and suction, and chronic cases by artificial pneumothorax.—*Hoskins, Texas State J. Med., Feb.* '38.

**Treatment of Coronary Occlusion**—As is the symptomatology characteristically divided into the symptoms of the attack, the heart and the infarction symptoms, so likewise may this division be used conveniently to indicate the line of treatment. Part of the treatment indirectly is symptomatic. Thus it is essential that pain be relieved and be relieved immediately. The pain throws extra work on the heart and it exaggerates the symptoms of shock. Therefore morphine should be administered at once if the diagnosis is unequivocal, and administered in doses sufficient to control the pain. Shock is combated by the usual measures of heat, fluids and rest. If it is necessary to give stimulants, caffeine sodium benzoate should be given hypodermatically and should not be repeated unless absolutely necessary. Morphine is the sheet anchor directly after the attack. Cardiac symptoms should be controlled as much as possible by rest. The infarcted heart is a laboring heart and it should be kept quiet by rest and morphine. Cardiac stimulation is indicated in those patients who rapidly develop congestive failure. If cardiac stimulation is indicated, a drug should be given which will act promptly and whose effects will not be prolonged. To meet this requirement ouabaine in doses of 0.5 mg. to 1.0 mg. hypodermatically is probably the most satisfactory drug. Digitalis may have to be used but digitalis stimulates the heart muscle and for some time. The purpose of treatment is to keep the heart as quiet as possible and not make it do more work. This is absolutely essential. Rest is the third important adjuvant to treatment of the heart and lastly oxygen in the cyanotic, dyspneic patient is sometimes a life saver. Quinidine should be given within a few hours. Administration of quinidine is in part theoretic but it does decrease cardiac irritability and lessens conductivity so that sedative effects of this drug may prevent some of the mechanistic derangements developing which in turn may cause death. Ventricular fibrillation is an excellent example.

After a period of time if signs of failure develop or failure has not responded to rest and treatment, then digitalis may be started but, until the area of infarction is reasonably replaced by fibrous tissue, it is best to withold this drug.

Within a few days after the onset of occlusion it is advisable to start the use of the xanthine drugs of which aminophyllin has been more generally used probably than any other. Because theocalcin is less irritating to the stomach than other xanthine preparations, it may be used in doses of 0.1 gm. taking two or three tablets with each meal. This drug should be kept up indefinitely. Xanthine preparations increase coronary flow and presumably permit a more efficient coronary circulation than there would be were they not given. It is a good idea to keep up with one or another of these preparations for the remainder of the patient's life.—*Musser, New Orleans M. & S. J., March* '38.

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue ..... Montgomery, Ala.

Subscription Price ..... $3.00 Per Year

March 1938

## DIAGNOSIS OF CORONARY DISEASE

"Before discussing the criteria for its diagnosis, we must first clearly understand what we mean by coronary disease. The term has come to imply atherosclerotic changes in the coronary arteries themselves, sufficient to interfere seriously with their function. Slight changes of little or no importance are universal, at least in practically all individuals after the second decade; . . . The slighter lesions, which are so common as to be almost physiologic, do not constitute disease. Neither is coronary artery disease or atherosclerosis of high degree an attribute only of age; it is a real disease process that is much commoner in the aged but which may also cripple and kill even in youth." Thus does White[1] define his terms in his discussion of this subject and he goes on to inform us that "the criteria for the clinical diagnosis of coronary artery disease are three in number and only three: (1) angina pectoris in the absence of luetic aortitis and of extensive aortic valve stenosis or regurgitation; (2) coronary thrombosis that can be clinically recognized; and (3) certain electrocardiographic abnormalities with or without angina pectoris or recent or old coronary thrombosis."

1. White, Paul D.: The Criteria for the Diagnosis of Coronary Disease, New England J. of Medicine, 217: 783 (Nov. 11) 1937.

The author asserts that the first criterion, angina pectoris, is important and common and is much better diagnosed today than it was ten or twenty years ago, though it is still too often called something else or is reported to be present when something else is wrong.

The Boston cardiologist holds that "the second criterion of coronary disease, namely, coronary thrombosis, is much less likely to be wrongly diagnosed in these days than is angina pectoris. A decade or two ago many cases were missed, but the danger at present lies in overdiagnosis. I now spend more time in excluding the diagnosis of coronary thrombosis than in correcting some other diagnosis." . . .

"The third criterion is electrocardiographic evidence, which is as good as the other two criteria. . . . These (electrocardiographic) observations hold true whether or not there is any angina pectoris or history of coronary thrombosis. They mean that there are either small myocardial lesions in the region of the auriculoventricular bundle or its branches, due to occlusion of small coronary arteries, or that the myocardium in fairly large areas is inadequately supplied with blood. Thus electrocardiography has come to play a large role in confirming coronary disease clinically or in uncovering it when it is concealed or latent. It has rightfully assumed an important place in life-insurance examination, for although the coronary disease revealed thereby may not be immediately serious or fatal, it is always important and demands at least a very careful analysis."

White states that "in the last fifteen years I have had 1518 private patients with unquestioned coronary disease. Males outnumbered females, 1192 to 326. Angina pectoris occurred in 1097, coronary thrombosis in 542; 251 patients had both angina pectoris and coronary thrombosis. The remaining 130 of the 1518 cases (9 per cent) showed clear evidence in their electrocardiograms, without history of either angina pectoris or coronary thrombosis."

The studies of White are both interesting and highly instructive and, coming from so eminent and experienced an investigator, will doubtless carry much weight with the profession. Often times the resources of a practitioner are severely taxed in endeavoring to decide whether a patient has or has

not coronary disease and White does not minimize the problem.

But progress is being made. It was only about twenty-five years ago that Herrick differentiated between angina pectoris and coronary thrombosis. Physicians in general are now very well informed regarding coronary disease and are increasingly alert in regard to detecting it. More knowledge is being gained in interpreting the electrocardiograms and the electrocardiographic machines, formerly so costly and ponderous, are now becoming inexpensive and portable. Not every doctor has access to one of these machines, but their use is steadily widening and it is well that this is so.

The diagnosis of coronary disease has been and is being constantly improved, something has been learned regarding its treatment, but, unfortunately, next to nothing is known about its prevention.

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### AMENDMENTS TO THE RULES GOVERNING MEDICAL EXAMINATIONS

The State Board of Medical Examiners calls attention to the following amendments to rules governing medical examinations:

#### REGARDING INTERNSHIP

Any applicant for a certificate of qualification to practice medicine in this State, after the collegiate year 1938, will be required to serve at least one year of internship in a hospital approved by this Board before such certificate will be issued. Applicant will be permitted to take the examinations, but certificate will not be issued until compliance with this requirement has been had.

#### REGARDING GRADUATES OF EUROPEAN SCHOOLS

In the case of an applicant, whether native born or foreign born, who has graduated from an European school, the following rules shall obtain:

(1) The applicant must present a certified statement from the National Board of Medical Examiners of the United States setting forth that he has successfully passed all examinations, written and oral, required by this Board; and

(2) Either (a) present a certificate of qualification to practice medicine (a license) issued in the country of his nativity or in the country in which the medical school, from which he graduated, is located; or (b) present a certificate setting forth that he has satisfactorily passed the federal examinations necessary to obtain licensure to practice medicine in the country in which the medical school, from which he graduated, is located.

All foreign born applicants shall first present at least first citizenship papers.

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## *Committee Contributions*

### PREVENTION OF CANCER

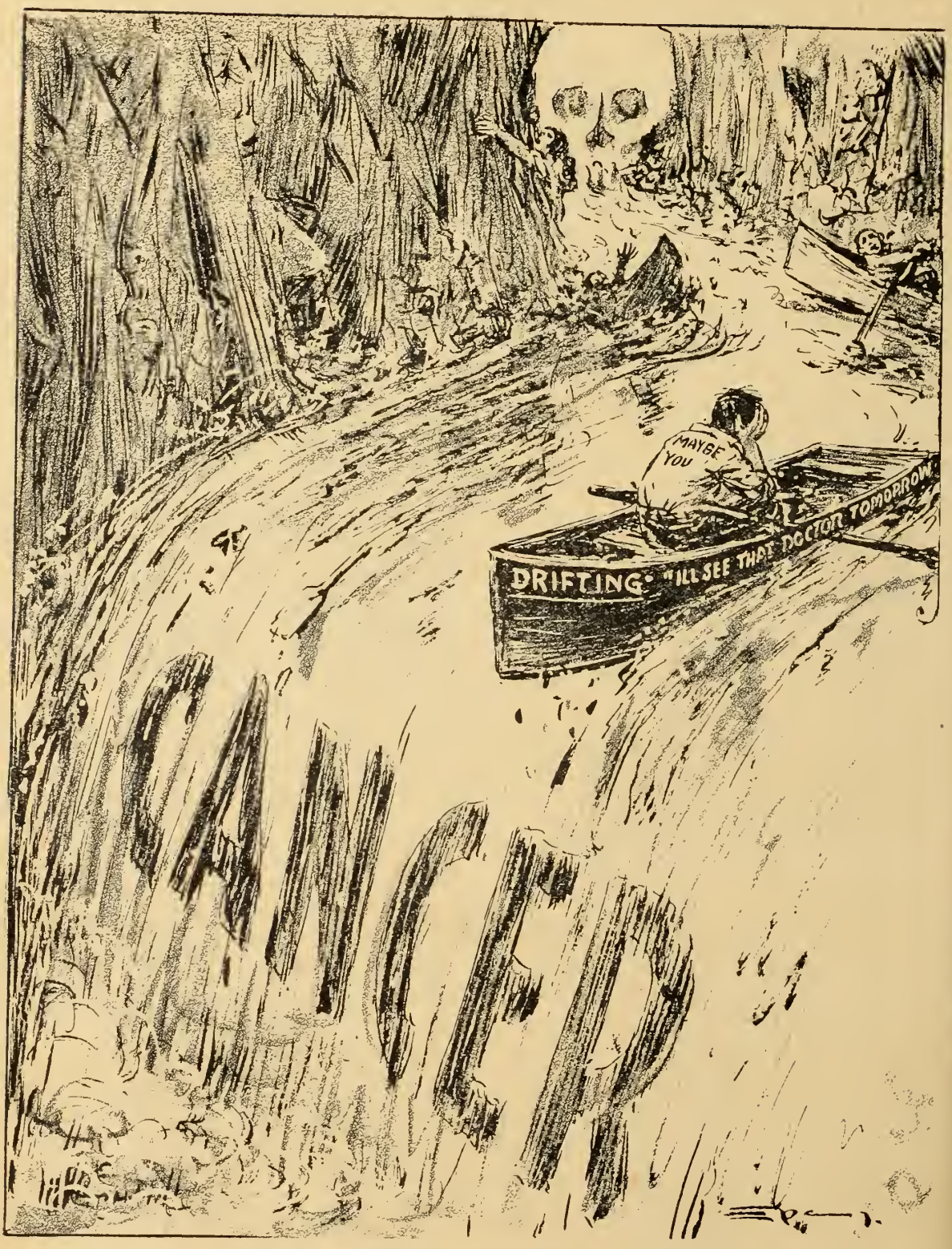
The problem of cancer prevention is one of vital interest to all physicans. This Committee, cooperating with the State Board of Health and the Women's Field Army of the American Society for the Control of Cancer, has started a state-wide educational program. A letter setting forth the plans has been sent to the presidents of the county medical societies urging them to appoint local committees on cancer and to arrange for a program on the discussion of cancer in some of its phases. Several radio programs have been given and it is hoped that the local societies will make use of these or similar programs whenever possible over their local stations. Material for these talks, if desired, can be obtained from the secretary of the Committee on the Prevention of Cancer.

The Women's Field Army of the American Society for the Control of Cancer was organized about two years ago and is made up entirely of women. They are interested in bringing to the people as a whole, and especially to women, the need for early diagnosis and treatment. They arrange for meetings and distribution of literature but look to the physicians for advice and direction. All lectures or talks to large or small groups concerning the medical aspects of cancer are given by the physicians. The committees of the State Association and county societies, as well as the physicians, have much to contribute to this program.

The organization of the Women's Field Army is as follows:

#### NATIONAL

American Society for the Control of Cancer
Executive Committee
Managing Director
Field Representatives
Chief Advisor
National Advisory Board




(Courtesy, The Montgomery Advertiser)

THE FALLS

STATE

Board of Censors, State Medical Association
State Cancer Committee
State Commander
Vice-Commanders

DISTRICT

Board of Censors, County Medical Society
County Cancer Committee
Captain

LOCAL

Local Advisory Board
Lieutenant
Local Unit Staff

Mrs. George W. Adams, of Andalusia, has been appointed State Commander. Dr. Eva F. Dodge, chief of the Division of Maternal Hygiene, of the State Board of Health, has consented to represent the State Association Committee on the Prevention of Cancer in her state-wide activities and to act in the capacity of secretary of the Committee. She will also act in an advisory capacity to Mrs. Adams in the educational program which the Women's Field Army is promoting this year.

It is the hope of this Committee that, through the combined effort of the Women's Field Army and the medical profession, every woman in the State may be reached and told what the early symptoms of cancer are, that an early visit to her physician is important, and that there are only three treatments for cancer, namely, radium, x-ray, and surgery.

J. P. Chapman, M. D., Chairman,
Harry Simpson, M. D.
Karl Kesmodel, M. D.
Eva F. Dodge, M. D., Secretary.

## PUBLIC RELATIONS

### Why Pay a Fee?

A Statement by the Bureau of Medical Economics
(J. A. M. A. Sept. 4, 1937)

The payment of a fee by physicians for a listing of their names in an insurance medical directory has been condemned as unethical by the following action of the Judicial Council:

The Judicial Council is of the opinion that most, if not all, of the directories, described in the resolutions condemning as unethical the listing of physicians by specialty in directories published by commercial concerns . . . are but subtle ways of avoiding the pronouncement of the Principles of Medical Ethics concerning solicitation of patients, under a guise of buying a directory when the real intent is the purchase of the publication of the buyer's name in the directory for the purpose of obtaining patients.

The resolution which called for this action by the Judicial Council was adopted by the House of Delegates not only because the listing of physicians' names in insurance medical directories constitutes indirect solicitation of patients but also because such directories mainly serve the profits of the publishers and are of little benefit to physicians or to insurance companies.[1]

If the reasons prompting the adoption of the resolution cannot be denied, the publishers of insurance medical directories should be shamed out of business. To collect fees from physicians for a listing of their names in a directory on the promise of lucrative practices as examiners for insurance companies and to urge insurance companies to use such lists on the promise that the physicians so listed are particularly qualified for insurance examination services is unforgivable if both promises prove false.

Letters were sent to 220 insurance companies located throughout the United States and Canada and representing all types—casualty, life, and health and accident—as well as large and small companies. Two simple questions were asked:

1. What medical directories are used in your office to assist in selecting physicians for the medical services required by your company?
2. To what extent are insurance medical directories used by the medical department or the claim department and adjusters as a source of information in selecting physicians?

Only five of the 118 companies which replied could be considered as making any use of the privately published insurance medical directories. These replies are quoted to illustrate that they are not enthusiastic recommendations:

We have, in the past, had some physicians' directories here in our office, but I could not say where they are located at the present time, and, furthermore, I don't think that we ever used them for selecting a physician in any part of the country.

Will say we do have two or three copies of medical directories in our files. However, it is the custom of our Company to allow each Claimant and Policyholder to choose and use his own Physician or Surgeon.

Occasionally I refer to insurance medical directories. *Not very often.*

1. Medical Directories, J. A. M. A. 108:25B (Jan. 23) 1937.

For the State of Iowa we sometimes use a directory supposed to be published by various insurance companies with their rating of the examiner.

We were furnished gratis some time ago one of the insurance medical directories. We have referred to this from time to time but we have not found it very helpful.

A few other companies report the receipt of insurance medical directories but do not make very definite use of them, as indicated by the following:

From time to time we receive medical directories from the so-called . . . Bureau, Inc. of . . . but they usually find their way to the wastebasket in less time than it takes to unwrap them.

The only insurance medical directory which I recall having received is that published by the . . . Medical Directory, Inc. of. . ., and that has come to me gratis, but I do not recall a single instance where it has been used for the purpose of selecting a physician as medical examiner.

It is a practice for the publishing company to send the insurance medical directory gratis to insurance companies. Sometimes the acknowledging letters are published as evidence of the use of such directories. However, from the replies received it appears that insurance companies actually make little use of these directories.

It is of interest that four of the five companies which use insurance medical directories at all also make use of the American Medical Directory. In fact, practically all of the replies—113 out of 118—volunteered the information that the American Medical Directory was the primary reference source in selecting qualified examiners. The following indicate the nature of these replies:

Medical Department depends entirely on the information obtained in the American Medical Directory plus the usual inspection reports and reports of other physicians in the locality as to the man's standing.

We use the American Medical Directory to a great extent for appointing examiners in the Medical Department. We also use it as a reference in our Claim Department.

Whenever we wish to use a Doctor we always refer to the American Medical Directory to obtain an Examiner's name.

Rely to large extent on American Medical Directory in our selection of examiners.

Our selection is based almost entirely upon the information in the American Medical Directory when selecting or appointing our examiners.

We use the American Medical Directory for the purpose of securing medical examiners in connection with any particular claim we are handling in any locality where at the present time we do not have a regular examiner.

We limit our investigation of doctors, as far as directories are concerned, to the American Medical Directory, which we have used for many years and will continue to use.

By far the greater majority of all the companies are subscribers to and use the very latest edition of the American Medical Directory. Furthermore, the replies from the companies which are not subscribers indicate that no directories are used. In view of the almost unanimous use and approval of the American Medical Directory by insurance companies, it is reasonable to conclude that the American Medical Directory is *the* reference source for the selection or appointment of physicians.

Most of the 102 companies not replying are small companies and of these over half are subscribers to the American Medical Directory. It is not believed that additional replies would greatly alter the preponderance of evidence that insurance medical directories are of little consequence in the selection of examiners. In fact, an air of hostility toward privately published medical directories appeared in several replies:

In checking the names of physicians appearing in certain so-called insurance medical directories with the American Medical Directory, I came to the conclusion that the doctors so recommended as especially qualified for insurance examiners were not in my judgment so qualified.

We all know the nature and the source of the names in these directories. Although oftentimes names do creep into these directories of competent and reputable men, as a source of reliable information they are worthless.

We have contended that these special directories were of little value since they only include those doctors who were willing to pay a fee to have their name printed.

The physician who pays to place his name in an insurance medical directory is in the same category as a physician who buys an insurance policy on the promise of an appointment as an examiner for the company. He is usually out of pocket, because the promised examination fees do not materialize. Reputable insurance companies are not influenced in the selection of their examiners by the fact that a physician purchases a policy from the company. Neither are they influenced by directories which purport to list only "qualified" examiners.

Some concerns do not issue directories but maintain reference bureaus or advisory

bureaus where information concerning a physician is filed for confidential reports to insurance companies. However, the nature of their services is, for all practical purposes, similar to that of companies which publish a directory. Since the data are compiled, as was stated by one bureau, for the "exclusive use of more than 800 progressive insurance carriers," it does seem that the insurance companies should pay for the information that is received and not the physician. This is true even if the fee "barely offsets the costs to the Bureau of examination, investigation, and recording of the applicant's qualifications."

If there is a physician who is not convinced that the payment of a $10 to $75 fee for the furnishing of personal information to concerns which publish insurance medical directories or operate reference bureaus is a poor investment, let him suggest to the next directory salesman that he will pay the required fee with the first money received from patients referred to him by reason of the directory listing. One physician stopped a directory salesman's pleas by offering to give him 10 per cent of all collections from patients obtained as a result of the company's effort, persuasion or directory.

The physicians in the United States and Canada will save money when they realize that they receive small value in return for the fees charged them to include their names in an insurance medical directory or in the files of a reference bureau. Not only is it strangely out of place for the physician to pay to furnish the information that is of value to such concerns, but, in addition, the promised services are not used by insurance companies. The American Medical Directory, the lists of certified specialists published by the American Medical Association, the directories published by state and county medical societies, the Year Book of the American College of Surgeons, the list of special examiners approved by the Insurance Medical Directors Association, the lists published by state boards of medical examiners, and similar bona fide directories adequately fulfil the needs of insurance companies for directories of physicians. Physicians are not charged a fee for the listing of their names in these directories, which are purchased by insurance companies for their medical and claim departments. On the other hand, privately published insurance medical directories cost the insurance companies nothing and they are apparently worth just that.

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### Health Insurance In a National Health Program

(Pennsylvania Medical Journal, Sept. '37)

An address on "Health Insurance in a National Health Program," delivered by John A. Kingsbury, of New York City, at the annual meeting of the National Conference of Social Work in Indianapolis in May, 1937, won Mr. Kingsbury the annual Pugsley Award for the year's outstanding contribution to the literature of American social work presented before the conference, Howard R. Knight, general secretary of the conference, announced at Columbus, O. The award carries with it a $250 prize, the gift of Chester D. Pugsley of Peekskill, N. Y.

Mr. Kingsbury is an associate Fellow of the New York Academy of Medicine and former director of the Milbank Memorial Fund. In his address he discussed a comprehensive national health program, calling it "one of the greatest needs of the nation today." He charged the American Medical Association with the use of obstructionist tactics to prevent the establishment of a national health program.

The editorial committee of the National Conference of Social Work, which made the award, unanimously favored Mr. Kingsbury's paper. At the same time, the committee voted honorable mention to Winthrop D. Lane, director, Division of Parole, Department of Institutions and Agencies, Trenton, N. J., for his address on "The Paroled Offender," in which he appealed for a new system of parole in the United States which would deny parole rights to governors, pardon boards, and courts. Special citation was awarded Sidney Hollander, Baltimore, Md., business man, for his address, "A Layman Looks at Public and Private Agencies."

"Like certain other big business organizations, still endeavoring to defeat other aspects of the New Deal program," said Mr. Kingsbury, "the American Medical Association is asserting all its power to prevent compulsory health insurance from taking its proper place in the Social Security Act.

So-called organized medicine is using every device known to pressure groups and politicians to prejudice the country against a comprehensive national health program, and particularly against compulsory health insurance."

Mr. Kingsbury called on social workers to meet the challenge, stating:

"One of the greatest needs of the nation today is a comprehensive national health program. There is today no long-range plan before the social workers of America more important than concerted action for a health program.

"The social workers must line up against the entrenched officers of organized medicine; they must align themselves beside the leaders of organized labor and beside the real leaders of the medical professions. Together with these groups the social workers of America can bring to pass a real national health program."

### The Crowning Impertinence

(Pennsylvania Medical Journal, Sept. '37)

In Washington, D. C., where government employees far outnumber all other employed groups, the philosophy of regimentation, socialization, and arbitrary control of everybody's business might well be expected to satisfy thousands who owe their employment to bureaucracy raised to the nth degree. Running true to form, "A Co-operative," organized among the 117,000 federal employees located in the nation's capitol, has recently begun to experiment with a socialized form of medical practice made available to its membership. The benefits paid for by a monthly pay-envelope deduction will include the ordinary 21-day hospitalization accommodations and the preventive, as well as the curative, professional medical and surgical services of a group of physicians.

Probably the crowning impertinence of this "opening wedge" lies in the statement made by the management of the co-operative to the effect that no physician thus contracting for the disposal of his services may be excluded from the medical societies of the District of Columbia. This is certainly a disquieting and discomfiting demonstration of the ends to which so-called New Deal experiments may go in the conversion of private physicians willy-nilly into federal officers and private medical practice into a new health system.

This threatened subjugation of the ethical principles of the medical profession to the control of the political spoils system should arouse all good citizens whose vision extends beyond the horizon of self-interest and the immediate present.

**Medical Care for the Destitute**— . . . There have been put in operation in the past year in several states programs for the provision of medical aid to indigent families by government supervised cooperative plans. The Board of Censors of the Medical Association of the State of Alabama has just approved a program providing medical attention for certain destitute families in rural communities.

Certain families under the Federal Resettlement Administration are to be established on farms. The families under consideration have average total assets of $3.05. The program is to lend them funds for a year's necessities: food, clothing, and shelter, agricultural implements, live stock, fertilizer, and medical care. Ordinarily they could pay nothing for a physician's services. Under the arrangement authorized they are to pay a maximum of twenty-five dollars per year per family, less in some states, this to cover home and office visits of the physician, simple drugs and obstetrical care, not surgical operations or hospitalization. The county medical societies are to be asked to furnish a list of physicians willing to undertake this work and the patient is to be permitted free choice from the list. The physician will thus receive a small compensation for a year's services to families which would otherwise be charity patients.

There are approximately ten thousand families under the rural rehabilitation division of the Resettlement Administration in Alabama, distributed through every county but one. Government, in rehabilitating them, prepares a budget for each and supervises its expenditure. It specifies exactly how much lard, bacon, lean meat, meal, flour, sugar, jam, coffee, molasses, soda and spice, tobacco, how many overalls, socks, undergarments and what medical care each family should purchase.

Physicians are told that their compensation is obviously inadequate, but that neither do these families receive as much food or clothing as they need; that the medical services should be proportionate to the standard for other necessities. The difficulty here is that the physician usually knows how to practice only one variety of medicine. Its quality cannot be strained. This fact may tempt self-sustaining neighbors of families in the rural rehabilitation program to demand a similar type of service.

The aim of the program, however, is to lift these destitute families into the class which owns property, is able to purchase its own provisions, and pay its own medical bills. If the project is successful, it should eliminate itself or greatly curtail its activities in the course of a few years instead of expanding. The experiments in rehabilitation and in distribution of medical care will be watched with much interest by the country at large.—*Editorial, South. M. J., Feb.* '38.

# PROGRAM OF THE ANNUAL SESSION
## MOBILE

APRIL 19-20-21, 1938

THE BATTLE HOUSE

**Host To The Association**

The Mobile County Medical Society

**COMMITTEES**

**Arrangements and Exhibits**

P. J. M. Acker, *Chairman*
C. A. Mohr — W. L. Heiter

**Reception And Dance**

G. G. Oswalt, *Chairman*
J. H. Dodson — H. R. Cogburn
E. C. Fonde — J. G. Sanders
J. H. Little — F. T. Boudreau
C. M. Cleveland — J. D. Peake
R. V. Taylor, Jr. — W. R. Meeker
N. R. Clarke

**Publicity**

L. W. Hollis, *Chairman*
L. V. McVay — J. M. Weldon
T. D. Haas — J. Mac Bell
H. G. Mulherin

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**First Day, Tuesday, April 19**

**Morning Session**

1. Call to Order at 10 A. M. by the President—
   *E. S. Sledge, Mobile.*
2. Invocation—
   *Rev. Warner Du Bose, D. D., Government Street Presbyterian Church, Mobile.*
3. *Addresses of Welcome—*
   *D. T. McCall, M. D., Chairman, Board of Revenue and Road Commissioners, Mobile.*
   *H. B. Dowling, President, Medical Society of Mobile County.*
4. Message of the President—
5. Reports of the Vice-Presidents—
   (1) *W. M. Salter, Anniston.*
   (2) *C. P. Hayes, Elba.*
   (3) *Merle Smith, Parrish.*
   (4) *A. B. Coxwell, Monroeville.*
6. Report of the Secretary—
   *Douglas L. Cannon, Montgomery.*
7. Report of the Treasurer—
   *J. U. Ray, Woodstock.*
8. Report of the Committee of Publication—
   *Fred W. Wilkerson, Montgomery.*
9. Reports of Standing Committees—
   (1) Public Relations—
   *John A. Martin, Chairman.*
   (2) Mental Hygiene—
   *Frank A. Kay, Chairman.*
   (3) Maternal and Infant Welfare—
   *A. E. Thomas, Chairman.*
   (4) Prevention of Cancer—
   *J. P. Chapman, Chairman.*
   (5) Prevention of Blindness & Deafness—
   *Job Cater, Chairman.*
   (6) Postgraduate Study—
   *Ralph McBurney, Chairman.*
   (7) Fractures and First Aid—
   *H. Earle Conwell, Chairman.*

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At 1:00 P. M. there will be a buffet luncheon at the Battle House.

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**Afternoon Session**

**Tuesday, April 19**

2:00 P. M.

1. L. H. HINTON, M. D.
   Mobile, Alabama.
   Paper: *"Review of Some External Eye Diseases."*
   Discussion: Job Cater, M. D., Montgomery, Ala.
2. J. OTIS LISENBY, M. D.
   Atmore, Alabama.
   Paper: *"The Diagnosis and Treatment of Tumors of the Breast."*
   Discussion: H. Philip Speir, M. D., Greenville, Alabama.
3. F. A. KAY, M. D.
   Tuscaloosa, Alabama.
   Paper: *"Metrazol Treatment of Psychoses."*
   Discussion: W. D. Partlow, M. D., Tuscaloosa, Alabama.
4. CHALMERS H. MOORE, M. D.
   Birmingham, Alabama.
   Paper: *"Head Injuries."*
   Discussion: Marcus Skinner, M. D., Selma, Alabama.
5. J. H. LITTLE, M. D.
   Mobile, Alabama.
   Paper: *"Progress in the Treatment of Diabetes."*
   Discussion: E. G. Givhan, Jr., M. D., Birmingham, Alabama.

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There will be a dinner of the University of Alabama Alumni in the Battle House at 6:00 P. M.

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**Evening Session**

**Tuesday, April 19**

8:00 P. M.

Symposium on Obstetrics

1. H. B. DOWLING, M. D.
   Mobile, Alabama.
   Paper: *"Chorio-Epithelioma."*

2. JAMES R. GARBER, M. D.
Birmingham, Alabama.
Paper: *"Fallacies in the Conduct of Labor."*

3. A. E. THOMAS, M. D.
Montgomery, Alabama.
*"The Birth of a Baby: A Sound Motion Picture."*

Discussion: J. M. Weldon, M. D., Mobile, Alabama.

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**Second Day, Wednesday, April 20**

**Morning Session**

9:00 A. M.

1. B. F. BYRD, M. D.
Nashville, Tennessee.
Paper: *"The Insurance Triangle: Applicant, Examiner, Company."*

2. R. S. HILL, M. D.
Montgomery, Alabama.
Address: *"Medicine as a Profession."*
Remarks: Maxwell E. Lapham, M. D., New Orleans, Louisiana.

3. J. H. MUSSER, M. D.
New Orleans, Louisiana.
Paper: *"Treatment of Organic and Inorganic Diseases of the Stomach."*

4. J. W. MEANS, M. D., and C. J. DELOR, M. D.
Columbus, Ohio.
Paper: *"Surgery of the Biliary Passages with Special Reference to the Hazards and Their Management."*

5. T. M. McMILLAN, M. D.
Philadelphia, Pennsylvania.
Jerome Cochran Lecture: *"An Optimistic View of Some of the Problems of Heart Disease."*

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**Afternoon Session**

**Wednesday, April 20**

2:00 P. M.

1. C. N. LEACH, M. D.
Montgomery, Alabama.
Paper: *"Rabies."*

2. A. GRAEME MITCHELL, M. D.
Cincinnati, Ohio.
Paper: *"Practical Application of Studies on Gastro-Enteritis."*

3. HENRY F. HELMHOLZ, M. D.
Rochester, Minnesota.
Paper: *"Abdominal Tumors in Childhood."*

4. OSCAR W. BETHEA, M. D.
New Orleans, Louisiana.
Paper: *"The Pneumonias."*

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After adjournment there will be a barbecue down on Dog River.

**Evening Session**

**Wednesday, April 20**

8:00 P. M.

PUBLIC MEETING

1. CHAS. A. MOHR, M. D.
Mobile, Alabama.
*Introductions.*

2. ALICE C. EVANS, U. S. P. H. S.
Washington, D. C.
Paper: *"Undulant Fever as a Public Health Problem."*

3. J. N. BAKER, M. D.
State Health Officer,
Montgomery, Alabama.
Address: *"What the State Department of Public Health is Doing for the Citizens of Alabama."*

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After adjornment there will be a reception and dance at the Country Club.

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**Last Day, Thursday, April 21**

9:30 A. M.

Business meeting of the Association sitting as the Board of Health of the State of Alabama.
(1) Report of the Board of Censors;
(2) Revision of the Rolls;
(3) Election and Installation of Officers.

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# PROGRAM

## THIRTEENTH ANNUAL MEETING WOMAN'S AUXILIARY

## TO

## THE MEDICAL ASSOCIATION

## OF THE

## STATE OF ALABAMA

CAWTHON HOTEL, MOBILE

APRIL 19, 20, 21, 1938

OFFICERS

**President**

Mrs. E. M. Norton ..... Fairfield

**President-Elect**

Mrs. W. M. Salter ..... Anniston

**Vice-Presidents**

Mrs. H. R. Cogburn ..... Mobile
Mrs. T. E. Dilworth ..... Huntsville
Mrs. Joe Horn ..... Bessemer
Mrs. C. L. Salter ..... Talladega

**Corresponding Secretary**

Mrs. W. S. Chapman ..... Birmingham

**Recording Secretary**

Mrs. Gilbert Greene ..... Birmingham

**Treasurer**

Mrs. Sam Wainwright ..... Birmingham

**Auditor**

Mrs. E. Dice Lineberry ..... Birmingham

**Advisory Committee**

Dr. H. Earle Conwell ..... Birmingham
Dr. Lee Wright Roe ..... Mobile
Dr. E. V. Caldwell ..... Huntsville

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**Tuesday, April 19th, 1938**

4:00 P.M.—Annual Executive Board Meeting, Cawthon Hotel, Mrs. E. M. Norton, Chairman, presiding.

**Wednesday, April 20th, 1938**

9:30 A.M.—Convention called to order: Mrs. E. M. Norton, presiding.

Invocation: Rev. J. B. Carpenter, Mobile, Ala.

In Memoriam: Mrs. H. R. Cogburn, Chairman.

Solo: Mrs. J. Mac Bell, Mobile.

Welcome Address: Mrs. D. T. McCall, Mobile.

Response: Mrs. O. R. Grimes, Gadsden.

Report of Credentials Committee: Mrs. S. H. Stephens, Mobile.

Report of Program: Mrs. R. P. Lester, Mobile.

Annual Reports of Officers:
- President-Elect — Mrs. W. M. Salter
- First Vice-Pres. — Mrs. H. R. Cogburn
- Second Vice-Pres. — Mrs. T. E. Dilworth
- Third Vice-Pres. — Mrs. Joe Horn
- Fourth Vice-Pres. — Mrs. C. L. Salter
- Recording Secretary — Mrs. Gilbert Greene
- Corresponding Secretary — Mrs. W. S. Chapman
- Treasurer — Mrs. Sam Wainwright
- Auditor — Mrs. E. Dice Lineberry
- Historian — Mrs. O. R. Grimes
- Parliamentary Referee — Mrs. J. U. Reaves
- President — Mrs. E. M. Norton

Annual Reports of Standing Committees:
- Public Relations — Mrs. Richard E. Tyler
- Lettie Daffin Perdue Fund — Mrs. E. S. Sledge
- Hygeia — Mrs. Lee Wright Roe
- Program — Mrs. Robert E. Lilly
- Jane Todd Crawford — Mrs. Julius Linn
- Archives — Mrs. Fred Denson
- Research of Medicine — Mrs. Brown McClendon
- Revisions — Mrs. E. P. McEniry
- Press and Publicity — Mrs. Jerome Chapman
- Executive Board — Mrs. E. M. Norton, Chairman

Annual Reports of County Auxiliaries:

1. Bessemer, Jefferson County—Mrs. F. C. Smith, President
2. Birmingham, Jefferson County—Mrs. R. M. Coston, President
3. Gadsden, Etowah County—Mrs. Amos C. Gipson, President
4. Talladega, Talladega County—Mrs. D. P. Dixon, President
5. Anniston, Calhoun County—Mrs. W. M. Salter, President
6. Mobile. Mobile County—Mrs. Vivian Hill, President
7. Huntsville, Madison County—Mrs. E. V. Caldwell, President

Appointment of Delegates:
- To National Convention.
- To Southern Medical Convention.

Annual Election of Officers.

Installation of Officers.

Report on Resolutions of Courtesy: Mrs. Sam Wainwright, Chairman.

Reading and Approving of Minutes.

Adjournment.

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LUNCHEON

Cawthon Hotel

1:00 P.M.—Luncheon: Toastmistress, Mrs. Vivian H. Hill, President, Mobile County Auxiliary.

Invocation: Mrs. Lee W. Roe, Mobile.

Greetings: Mrs. J. H. Dodson, Mobile.

Response: Mrs. E. V. Caldwell, Huntsville.

Report of Entertainment Committee: Mrs. R. P. Lester, Mobile.

Guest Speaker: Mrs. Augustus C. Kech, President, Woman's Auxiliary to American Medical Association.

Recognition of Past Presidents.

Introduction of Outgoing and Incoming Officers.

Adjournment.

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**Thursday, April 21st, 1938**

9:30 A.M.—Executive Board Meeting, Cawthon Hotel.

PROGRAM

THE ALABAMA PEDIATRIC SOCIETY THIRTEENTH ANNUAL SCIENTIFIC SESSION

Mobile
(The Battle House)

**Monday, April 18**

**Afternoon Session**

"Is the Pediatrician a Psychiatrist?"—Dr. A. Graeme Mitchell, Professor of Pediatrics, University of Cincinnati.

"The Treatment of the Acute Urinary Infections in Childhood"—Dr. Henry Helmholz, Head of the Department of Pediatrics, Mayo Clinic.

"A Comparative Review of the Drugs Used in the Treatment of Syphilis"—Dr. Joseph Yampolsky, Emory University, School of Medicine, Atlanta, Georgia.

**Evening Session**

"Old Medical Caricatures—Dr. A. Graeme Mitchell, University of Cincinnati.

To be announced—Dr. Joseph Yampolsky, Atlanta.

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF ADMINISTRATION

J. N. Baker, M. D.
State Health Officer in Charge

### EAST ALABAMA HEALTH DISTRICT STUDIES IN ADMINISTRATIVE PROCEDURE

Organization of a seven-county East Alabama Health District, consisting of a medical director, a tuberculosis specialist, a pediatrician, an expert in dental hygiene, a district nurse, and a sanitary engineer, is announced. Headquarters of this newly created district, which will include the counties of Bullock, Chambers, Lee, Macon, Randolph, Russell and Tallapoosa, will be at Opelika.

For some years, in order to meet, at least in part, the constant need of a growing field organization, the State Health Department has conducted, spasmodically and not altogether satisfactorily, a field training base at Opelika, in Lee County. Five years ago, through the generosity of the Rockefeller Foundation, the department was able to add to this training base sufficient personnel and equipment to carry on a clinical research study in rural tuberculosis, placing particular emphasis upon the incidence of this disease in a typical rural southern county and upon practical methods of dealing with the problem in the absence of adequate hospital facilities, which do not now obtain in Alabama. Much information has been obtained from this study which should prove of great value to tuberculosis workers, not only in Alabama, but also in other rural states similarly circumstanced. Also of great value has been the development of a greater health consciousness among the members of the medical profession and the general public and, particularly, a higher appreciation of organized health effort directed by and through trained personnel. It was out of these experiences and a desire to improve administrative practices that there was evolved the plan for the creation of this East Alabama Health District, incorporating the two-fold purpose of a practical teaching centre and a demonstration area for specialistic health services. The seven-county area, typical of rural Alabama, has a population of some 212,000, of which approximately 100,000 are white and approximately 112,000 are colored. In the financing of this project both the Rockefeller Foundation and the Commonwealth Fund are aiding generously, the former by concentrating its interests in developing a more intensified program for the control of tuberculosis within the area and the latter by strengthening and expanding certain other consultant and specialized services felt to be so necessary to any rural area.

Dr. A. H. Graham, formerly in charge of the Rockefeller Foundation's tuberculosis study project in Lee County, has been named medical director of the East Alabama Health District. Dr. Paul W. Auston, formerly associated with Dr. Graham in that study, will serve as the district's tuberculosis expert. Dr. Sidney H. Morrow, a graduate of the Atlanta Southern Dental College and recently in private practice in Birmingham, will be in charge of the district-wide mouth hygiene program. Dr. H. L. Mueller, a graduate of the Harvard Medi-

cal School and formerly on the staff of the Children's Hospital in Boston and the Children's Hospital in Detroit, has been named pediatrician. Mr. G. S. Christopher, formerly a member of the staff of the Bureau of Sanitation of the State Department of Health, will direct the district's sanitation program, and Miss Velma M. Owen, formerly county nurse in Walker, Limestone and Calhoun Counties and more recently an advisory nurse on the staff of the State Health Department's Bureau of Hygiene and Nursing, will be in charge of nursing activities.

The remaining personnel needed to round out the staff will be added in the near future.

## BUREAU OF LABORATORIES

Samuel R. Damon, Ph.D., Director

### COST OF SPECIMEN CONTAINERS

The Bureau of Laboratories of the Alabama State Board of Health, through its central laboratory and its eight branch laboratories over the State, examined during the year, 1937, a total of 387,417 specimens submitted by physicians and health officers. Free containers and mailing cases were furnished by the laboratories for the collection of these specimens. From the number of specimens examined during a single year it is apparent that tremendous numbers of containers and mailing cases are required to supply the demand for these items. A large investment is made yearly by this Bureau in the purchase of the several kinds of specimen containers and mailing cases necessary. These supplies are expensive even when bought in large quantities as witness the costs on individual specimen containers and mailing cases. See table in next column.

From this table it will be noted that mailing cases are much more expensive than are the containers they carry. The cost of a complete container varies from 2c to 25c, depending upon the type, with the majority of containers costing about 8c each. Considering the number of physicians in active practice in this State and the 67 full-time county health units in operation, some idea is obtained of the cost to the laboratories in supplying large reserves of containers. As a matter of fact, such large supplies are a financial impossibility to the laboratories, particularly considering the losses in mailing cases that are incurred yearly. Specimen containers and mailing cases are designed and constructed to give a maximum of service. When they are returned to the laboratories the containers are thoroughly cleaned and sterilized, the mailing cases are relabeled and repacked and the complete containers are again put into circulation. Under this system, if these laboratory supplies are returned to the laboratory, they are kept in service indefinitely.

| Type Of Specimen | Cost Of Each Mailing Case | Cost Of Each Specimen Container | Total Cost of Each Complete Shipping Container Including Request Slip, Label, Etc. Exclusive Of Cost Of Preparation |
|---|---|---|---|
| Diphtheria | 6½c | 1c | 8c |
| Wassermann | 6½c | 1c | 8c |
| Sputum for T. B. or Pneumonia | 7½c | 1c | 9c |
| Blood, Feces, or Urine for Typhoid | | | |
| Single | 7½c | 1c | 9c |
| Double | 9c | 2c | 12c |
| Intestinal Parasites | | | |
| Individual | 5½c | 2c | 8c |
| Survey | None | 1/3c | 1/3c |
| Private Water | 9c | 10c | 20c |
| Milk | None | 25c | 25c |
| Smear for G. C. Malaria, etc. | ¾c | ¾c | 2c |

Losses are incurred by the laboratories chiefly in two ways:

1. Through the practice of some physicians and health officers of utilizing specimen containers for other purposes than the submission of specimens and then throwing away the mailing case. This mailing case is much more expensive than is the specimen container.

*If it is necessary to use a specimen container for other purposes; or if the container is broken or otherwise unsatisfactory, please return the mailing case to the laboratory.*

2. Through the attempt of health officers in some counties to maintain a supply of all laboratory mailing cases and containers sufficient for the needs of the physicians of that county as well as for use in his own work. This unauthorized maintenance of supply depots effectively removes large numbers of shipping cases and containers from circulation and causes shortages of

expensive supplies. With all 67 of the counties of the State organized it is impossible for the laboratories to supply any county health unit with more containers than are actually needed by that unit in the furtherance of its own work. Any physician may quickly obtain complete laboratory containers of any kind by simply requesting the nearest branch laboratory to send them to him. For this reason, expensive county supply depots are unnecessary. However, to facilitate cooperation by county health units with the Bureau of Laboratories in discontinuing this wasteful practice, each county health unit will be furnished a supply of printed one cent post cards, to be used in requesting containers. These cards are addressed to the nearest laboratory and bear a printed list of those containers which are furnished by the laboratories. In using these cards it will only be necessary for the physician to indicate the kind and number of containers desired and to sign his name.

*Do not try to maintain a supply of laboratory containers in excess of those necessary for one or two months of personal routine use.*

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## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### MEASLES

Measles is known as one of the most contagious diseases to which mankind is heir and it is the rare adult who does not give a history of having at some time suffered from an attack. When measles appears in a community, nearly all susceptibles who are exposed contract the disease, hence the picture of measles is one of repeated epidemics with periods of very low incidence in between.

Alabama has had almost three years of abnormally low incidence so the return of an epidemic could be predicted with safety. The last six months of 1935 showed only 190 cases reported, while the year 1936 had 604 cases on record. The year 1937 in turn ended with 601 cases reported. January 1938, however, had 640 cases reported and the first two weeks of February have brought in an additional 1,061 cases. In epidemic years, March and April are always the months of greatest incidence so we may confidently expect the same to be true this year.

Measles has frequently been looked on as a minor disease and, since nearly everyone contracted it, the attitude has been taken that the sooner a child had it the better for all concerned. Unfortunately, in the very young and in the undernourished, weakly child, measles is a very serious disease and death from measles or one of its complications, such as pneumonia, is altogether too common.

Young children should be protected against exposure and, if too late for this, consideration should be given to the use of some agent that will prevent or modify the attack. Several methods have been used that have been successful. Convalescent serum, adult immune serum, adult immune whole blood and the various placental extracts have all proven of value. To protect completely, they must be administered within the first four days after exposure, while, for modification, they may be given up to twelve days after exposure. When complete protection is obtained, the immunity is of short duration and the child will be susceptible again after three to four weeks. With modified attacks, the child builds up his own immunity but is spared as a rule the serious complications of the disease.

Convalescent serum and adult immune serum are difficult to prepare when needed, while the dosage of whole blood is rather large so the trend is towards the use of placental extracts. Reports would indicate that the extracts are comparable to convalescent serum in value so their use should be encouraged in the production of modified attacks of measles, particularly in children who are not good risks.

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### WHAT CONSTITUTES A DIAGNOSIS OF SYPHILIS

Although this question has been discussed previously in the Journal, and it is not the intention to be trite, there still seems to be a need for clarification of the subject.

As every physician knows, there are laboratory tests for syphilis which may or may not be diagnostic. The Wassermann, Kahn and other serologic tests, when positive, are merely presumptive evidence of syphilis. These tests correspond to the Widal in ty-

phoid fever. Unless there is definite collateral evidence of syphilis, it is well for the physician to remember that false positives can occur. It is no reflection on any laboratory to say that, whenever interpretations are made by humans and not machines, there is always a chance to err. Hence, a patient should never be labelled syphilitic on one positive serologic test with no other collateral evidence of syphilis. The patient probably has syphilis but there is that remote chance that he may not have. Therefore, this test should be repeated at least 3 or 4 times and it should be positive 2 out of 3 or 3 out of 4 times before a diagnosis of syphilis is made. This repetition of the test should only be done when the serologic reaction is the only sign the patient offers for a diagnosis of syphilis. But quite often a careful history and physical examination will reveal other signs and symptoms of syphilis. In that case a positive diagnosis is established. However, it should be remembered that symptomless infections do occur and that primary and secondary lesions may be so slight and transitory as to escape the notice of the patient or, if seen, to be quickly forgotten.

Darkfield examinations, when positive for spirocheta pallida, are absolutely positive evidence of syphilis. This test is not a presumptive one and is comparable to a blood culture when *E. typhi* are found. It is to be assumed that to make a darkfield examination there must be a lesion of some kind from which to obtain serum. This in itself offers collateral evidence of syphilis since the lesion must be a genital or extragenital one. If it is on the skin, it may be a chancre, condyloma or an eruption. If it is on the mucous membrane, it may be a mucous patch or luetic ulceration. But a negative darkfield does not mean that syphilis is absent. It does suggest, however, repeating this examination and, if persistently negative, a weekly or bi-weekly serologic follow-up.

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## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### ALABAMA'S NUTRITION PROGRAM

The nutrition program of the State Department of Health is part of and correlated with the mouth hygiene program. It is promoted by the oral hygiene division, which is a part of the Bureau of Hygiene and Nursing. Reuben T. Crawford, D.D.S., is the associate in charge of the Division of Oral Hygiene. Miss M. Martha Walters, oral hygiene instructor, who has recently completed a course in nutrition and public health at Simmons College, Boston, Massachusetts, is the nutrition consultant.

The aim of the nutrition program is to aid in promoting personal health in each individual, with emphasis upon good dental health through the use of the normal every-day diet. The purpose of the program is to teach the food components of the normal diet and to emphasize that this diet should be followed each day in order to help insure optimal general and dental health.

The nutrition program is strictly educational in nature. The procedure for presentation is identical with the plans for presenting the mouth hygiene program, which was discussed in the July 1937 issue of this Journal. For the sake of clarity these plans are reviewed here.

Each county is a unit for presentation and the program is carried out with the cooperation of the county health officers, district dental societies, county school superintendents, principals and teachers. The staff dentist and oral hygiene instructor teach the subject of oral hygiene, including the proper brushing of the teeth, regular visits to the dentist, and proper nutrition in all class rooms of each school. Local dentists make the dental inspections in the schools. Upon recommendation of the dentist who makes the examination, proper notice as to whether the child needs dental attention is sent to his parents and if there is a need for dental attention the parents are urged to have it done immediately. When possible, a check-up is made several weeks after the initial program and includes additional instruction in mouth hygiene and nutrition.

When arrangements can be made, lectures are presented to parent-teacher associations and other civic organizations in a county where the program is in progress. During the summer special lectures on dental health and nutrition, in their relation to mouth health and general health, will be presented in all of the teacher training schools.

The nutrition consultant also acts in an

advisory capacity to personnel in the State and county health departments and other organizations requesting information about nutrition. No attempt is made to prescribe special diets to aid in the treatment of diseased conditions. The normal every-day diet and the problems relating to food selection, which arise in securing this diet, are the keynote of the nutrition program. Suggestions for securing the most food value for the money and supplying a normal every-day diet on a limited income are a particularly helpful feature of the program.

Educational materials, in the form of posters, bulletins, charts and pamphlets, relative to the subject of nutrition and its relation to mouth health and general health, are available from the central office.

M. M. W.

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### STILLBIRTH RATES

During the decade (1927-1936) an annual average of 3,112 stillbirths has been registered. Since 1929, the trend in the stillbirth rate has been downward. The rate in 1936 (45.3 per 1,000 live births) was the lowest in the above ten-year period. However, the rate of decline has been comparatively small.

It will be noted that the colored stillbirth rate has been consistently more than twice the white. There are a number of ways of expressing the stillbirth rate. Expressed in terms of 100 deaths of infants under one year of age, an interesting point may be observed. In 1936, for each 100 infants dying during their first year of life, approximately 70 stillbirths occurred. Among the white, a little more than half as many stillbirths occurred as infant deaths, whereas among the colored the ratio was approximately 80 per cent. In 1932, the number of colored stillbirths was only slightly below the total number of colored deaths of infants under one year.

Attention is usually directed to the loss of infants by death following birth rather than by stillbirth. Effort should be made to reduce not only the number of infant deaths but that of stillbirths as well.

A third form of rate is shown which, for want of a better name, may be referred to as the stillbirth-neonatal rate. It is computed by determining the ratio of the sum of the number of stillbirths and deaths of infants occurring during the first month of life to the number of live births. Causes of stillbirth are frequently the same as those responsible for neonatal deaths. In 1936, for each 1,000 live births, 85 infants were either born dead or died during the first month after birth.

STILLBIRTH RATES PER 1,000 LIVE BIRTHS, 100 DEATHS UNDER ONE YEAR AND STILLBIRTH-NEONATAL RATES PER 1,000 LIVE BIRTHS, ACCORDING TO COLOR AND YEAR: ALABAMA, 1927-1936.

| | Stillbirth Rates | | | | | | Stillbirth-Neonatal Rates | | |
|---|---|---|---|---|---|---|---|---|---|
| | Per 1,000 Live Births | | | Per 100 Deaths Under 1 Year | | | Per 1,000 Live Births | | |
| | Total | White | Col. | Total | White | Col. | Total | White | Col. |
| 1927 | 48.8 | 36.5 | 71.8 | 76.0 | 66.4 | 88.0 | 84.8 | 68.0 | 115.9 |
| 1928 | 51.1 | 36.4 | 78.2 | 68.7 | 57.2 | 83.0 | 91.1 | 71.7 | 126.9 |
| 1929 | 53.0 | 36.3 | 83.7 | 71.6 | 56.5 | 91.2 | 94.5 | 74.2 | 131.6 |
| 1930 | 52.5 | 36.5 | 81.0 | 73.0 | 61.2 | 86.5 | 93.0 | 71.4 | 131.4 |
| 1931 | 48.9 | 34.3 | 74.4 | 79.7 | 65.6 | 96.5 | 85.0 | 65.8 | 118.3 |
| 1932 | 48.6 | 33.6 | 73.7 | 80.2 | 64.8 | 97.8 | 84.8 | 65.1 | 117.6 |
| 1933 | 47.6 | 31.1 | 73.6 | 72.6 | 55.4 | 91.6 | 87.3 | 65.0 | 122.4 |
| 1934 | 49.2 | 33.7 | 75.1 | 73.2 | 59.2 | 88.8 | 86.1 | 65.1 | 120.8 |
| 1935 | 48.1 | 33.6 | 71.4 | 76.9 | 65.6 | 88.4 | 85.0 | 64.9 | 117.4 |
| 1936 | 45.3 | 30.5 | 68.5 | 67.9 | 56.0 | 79.9 | 84.9 | 63.1 | 119.2 |

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### HISTORY OF ENDEMIC TYPHUS FEVER

ITS INCIDENCE AND DISTRIBUTION IN ALABAMA 1933 THROUGH 1937

Endemic typhus fever, usually designated as Brill's disease, had been noted by various observers from New England south along the coast to the Mexican border since 1910, but it was not until 1933 that it was brought forcibly to the attention of the medical profession and health authorities of Alabama as a major problem. The number of cases reported to the Bureau of Preventable Diseases increased from 232, in 1932, to 823 in 1933. Science at this time had definitely proved the role played by rats and their parasites in the transmission and spread of the disease and that they must be reckoned with as a menace to health.

Following the marked upward trend of this disease during the summer of 1933, a preliminary epidemologic study indicated that it was confined largely to nine southeast Alabama counties, and the heaviest infection appeared to be about the wholesale districts in urban centers. Local support

was enlisted for carrying on control work in these areas. Two engineers were assigned to the work and were sent into the territory for the purpose of promoting municipal rat trapping programs. During the period September 1st to November 20th, sixteen counties were visited and programs inaugurated in 47 towns.

Labor and funds for control work were made available through the Civil Works Administration in August, 1933, and the Department of Health, in conjunction with other interested agencies, instituted a state-wide rat extermination program. Large numbers of rats were destroyed in both rural areas and urban centers. As a result of this reduction in the rat population the number of cases of typhus fever took a decided drop, only 271 cases being reported in 1934, against 823 cases in 1933.

There has been a continuous increase in the number of cases reported each year since 1934, and each year has shown a wider distribution of the disease. Several cases were reported during 1937 from the extreme northern counties of the state. The highest incidence has been confined to the counties south of the center line of the state.

The public is responsible for the large rat population. Buildings are constructed without any thought being given to the exclusion of rats. In many communities there is also a disregard of the ordinary principles of sanitation and the disposal of refuse.

The continued spread of this disease is being caused either by the migration or the transportation of rats from typhus infected reservoirs to uninfected areas, thereby creating new reservoirs of the disease. Typhus fever has, unfortunately, therefore, become endemic in Alabama and adjoining states. Its control places an additional financial burden on the communities involved. This being practically a new field in preventive medicine, the State Department of Health realized the necessity of having trained men for this work. During 1935 the department secured the services of the Chief of Rodent Control, United States Public Health Service, for this purpose, and five men were instructed in modern methods of control. During 1937 five others attended a course of instruction and demonstrations conducted in Macon and Savannah, Georgia.

To check the increase in the number of cases and prevent further spread of the disease it is imperative that the number of rats in Alabama be reduced to, at least, a point of safety. This reduction must be maintained. Continuous control, rather than periodic reduction in the number of rats and fleas, will give the highest degree of health protection.

Because of the fact that the problem will be with us year after year, one of the policies of the State Department of Health has been to integrate this activity as a part of the work of County Health Departments where the incidence of the disease indicates such a step. It has been necessary to train the personnel of the departments in modern methods of control. Training classes have been held and instructions given by lectures, motion pictures, and field demonstrations of rat-proofing and extermination, and several counties have conducted campaigns in the last year with a noticeable reduction in number of cases reported.

One of the most important phases of control work is the education of the public as to the danger of rat-borne diseases through rat infestation of premises. The department has continued its educational program since 1935 through the press and radio, and also by lectures and motion pictures to schools and civic organizations.

During 1937 a state-wide Works Progress Administration typhus fever control project was approved for Alabama, and, in counties where persons certified for relief are available, labor can be secured for extermination work when the communities will furnish the bait and poison. Skilled workers can be obtained for rat-proofing buildings where the property owners agree to supply the materials. It is hoped extensive work can be carried on during the year with this aid.

According to the reports received by the Bureau of Preventable Diseases, no counties where control measures were applied reported an increase in the number of cases. In a number of counties where no effort was made at control the number of cases reported more than doubled in 1937. Therefore, the reduction in the number of cases reported in the counties where control work was carried on and the increase in the incidence of the disease where no effort was made to combat it prove definitely that

the disease can be checked.

To prevent an increase in the number of cases of the disease and its wide-spread distribution, it is necessary that the public, governing bodies, and health officials face the situation squarely and understand that warfare against the rat must be waged continually. Although measures for the permanent riddance of rats should be taken wherever practicable, they must be combined with rat destruction and in many of our rural communities rat killing is the only practical method of control.

A. J. P.

## CURRENT STATISTICS

*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA: 1938

| | 1937 Dec. | 1938 Jan. | Estimated Expectancy Jan. |
|---|---|---|---|
| Typhoid | 14 | 14 | 16 |
| Typhus | 27 | 21 | 11 |
| Malaria | 92 | 37 | 65 |
| Smallpox | 1 | 13 | 12 |
| Measles | 66 | 640 | 80 |
| Scarlet fever | 87 | 101 | 104 |
| Whooping cough | 107 | 121 | 131 |
| Diphtheria | 108 | 80 | 132 |
| Influenza | 746 | 1782 | 1180 |
| Mumps | 41 | 88 | 127 |
| Poliomyelitis | 6 | 6 | 3 |
| Encephalitis | 2 | 1 | 2 |
| Chickenpox | 134 | 338 | 307 |
| Tetanus | 5 | 3 | 4 |
| Tuberculosis | 224 | 209 | 234 |
| Pellagra | 10 | 25 | 13 |
| Meningitis | 31 | 47 | 10 |
| Pneumonia | 479 | 983 | 605 |
| Syphilis | 1282 | 1296 | 144 |
| Chancroid | 12 | 15 | 6 |
| Gonorrhea | 293 | 395 | 154 |
| Ophthalmia neonatorum | 0 | 2 | 1 |
| Trachoma | 2 | 0 | 0 |
| Tularemia | 0 | 3 | 2 |
| Undulant fever | 2 | 3 | 1 |
| Dengue | 0 | 1 | 0 |
| Amebic dysentery | 1 | 0 | 0 |
| Rabies—Human cases | 1 | 0 | 0 |
| Positive animal heads | 72 | 92 | .. |

*As reported by physicians and including deaths not reported as cases.
The Estimated Expectancy represents the median incidence of the past nine years.
With the venereal diseases, clinic cases were not included prior to 1936.

# *Medical News*

*(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)*

The Alabama Dental Association will hold its annual meeting in Birmingham, April 11, 12 and 13, at the Tutwiler Hotel.

On Tuesday evening at 8:00 o'clock, in the Peacock Room, Dr. Edward C. Rosenow of the Mayo Foundation, Rochester, Minn., will deliver a lecture entitled "Elective Localization of Streptococci and the Relationship of Dental Sepsis to General Health."

The Alabama Dental Association extends to all members of the medical profession a cordial invitation to attend this lecture.

* * *

The American Board of Obstetrics and Gynecology announces that the general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire Board, meeting in San Francisco, California, on June 13 and 14, 1938, immediately prior to the meeting of the American Medical Association.

Application for admission to the June 1938 Group A examinations must be on an official application form and filed in the Secretary's Office before April 1, 1938.

The annual informal dinner and general meeting of the Board will be held at the Palace Hotel, San Francisco, on Wednesday evening, June 15, 1938, at seven o'clock. Dr. William D. Cutter, Secretary of the Council on Medical Education and Hospitals of the American Medical Association, will be the guest speaker, and the Diplomates certified at the preceding days' examinations will be introduced individually. All Diplomates are invited to attend the dinner meeting, and to bring as guests their wives and any persons interested in the work of the Board.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh, (6), Pa.

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At a recent meeting of the Board of Trustees of the Morgan County Tuberculosis Sanatorium, it was agreed to have a monthly clinic on diseases of the chest for physicians. The clinic will be held at the sanatorium near Flint on the second Tuesday of every month at 7:00 P. M. with Dr. Kellie Joseph in charge. All physicians are cordially invited to attend.

The plan is (1) to show x-rays of the outpatient clinic of the sanatorium for the preceding four weeks; (2) to discuss cases of especial interest; and (3) to invite physicians to bring their own cases up for discussion.

It is believed that the clinics will stimulate an increasing interest in tuberculosis.

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Dr. F. F. Young, Physician in Chief of the Fenwick Sanitarium, Covington, La.,

has been elected President of the St. Tammany Parish Medical Society for the ensuing year.

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Rules governing the award of "The Foundation Prize" of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons have been announced as follows by James R. Bloss, M. D., Secretary, 418 11th St., Huntington, W. V.:

(1) The award which shall be known as "The Foundation Prize" shall consist of $500.00.

(2) Eligible contestants shall include only (a) interns, residents, or graduate students in Obstetrics, Gynecology or Abdominal Surgery, and (b) physicians (with an M. D. degree) who are actively practicing or teaching Obstetrics, Gynecology or Abdominal surgery.

(3) Manuscripts must be presented under a nom-de-plume, which shall in no way indicate the author's identity, to the Secretary of the Association together with a sealed envelope bearing the nom-de-plume and containing a card showing the name and address of the contestant.

(4) Manuscripts must be limited to 5000 words, and must be typewritten in double-spacing on one side of the sheet. Ample margins should be provided. Illustrations should be limited to such as are required for a clear exposition of the thesis.

(5) The successful thesis shall become the property of the Association, but this provision shall in no way interfere with publication of the communication in the Journal of the author's choice. Unsuccessful contributions will be returned promptly to their authors.

(6) All manuscripts entered in a given year must be in the hands of the Secretary before June 1st.

(7) The award will be made at the Annual Meetings of the Association, at which time the successful contestant must appear in person to present his contribution as a part of the regular scientific program, in conformity with the rules of the Association. The successful contestant must meet all expenses incident to this presentation.

(8) The President of the Association shall annually appoint a Committee on Award, which, under its own regulations, shall determine the successful contestant and shall inform the Secretary of his name and address at least two weeks before the annual meeting.

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The American Board of Ophthalmology announces that in 1938 it will hold examinations in San Francisco, June 13th, during the American Medical Association; Washington, D. C., Oct. 8th, during the American Academy of O. and O. L.; and Oklahoma City, Nov. 14th, during the Southern Medical Association.

Up to the end of 1937, the Board has held fifty-six examinations and had certified 1,498 ophthalmologists. The Board on January 1st, 1938, issued a new and complete list of physicians certificated to date, arranged geographically. This list was mailed gratis to all certificated persons and to over two hundred and fifty hospitals and institutions.

During 1937, examinations were held at Los Angeles on January twenty-third, at Philadelphia on June seventh, and at Chicago on October eighth and ninth. At these examinations 25, 71, and 84 candidates respectively were examined; of whom 19, 42, and 56 respectively were passed; 3, 17, and 25 respectively were conditioned; and 3, 2, and 1 respectively failed.

The American Board of Ophthalmology has established a Preparatory Group of prospective candidates for its certificate. The purpose of this Group is to furnish such information and advice to physicians who are studying or about to study ophthalmology as may render them acceptable for examination and certification after they have fulfilled the necessary requirements. Any graduate or undergraduate of an approved medical school may make application for membership in this Group. Upon acceptance of the application, information will be sent concerning the ethical and educational requirements, and advice to members of the Group will be available through preceptors who are members or associates of the Board. Members of the Group will be required to submit annually a summarized record of their activities.

The fee for membership in the Preparatory Group is ten dollars, but this amount will be deducted from the fifty dollars ultimately required of every candidate for examination and certification. For sufficient reason, a member of the Preparatory Group may be dropped by vote of the Board.

In future issues of the directory of the American Medical Association certificated ophthalmologists will be so designated in their listing.

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Dr. A. Graeme Mitchell, Professor of Pediatrics, University of Cincinnati College of Medicine, addressed the Jefferson County Medical Society, Birmingham, February 17, his subject being "Commonplace Endocrine Problems of Childhood."

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Essayists appearing on the program of the Postgraduate Surgical Assembly, the Southeastern Surgical Congress, Louisville, March 7, 8 and 9, included Drs. Chalmer H. Moore, Birmingham, and W. H. Blake, Jr., Sheffield.

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Dr. H. H. Whitted, a Negro physician trained in venereal disease control, has been loaned by the U. S. Public Health Service to the State Health Department. He will work amongst the physicians of his own race bringing to them modern and approved methods of treatment and control of the venereal diseases. He will try to reach as many lay Negro audiences as possible teaching them the facts about venereal disease.

## Book Abstracts and Reviews

**Personnel Policies in Public Health Nursing.** Prepared for the Committee on Personnel Practices in Official Agencies of the National Organization for Public Health Nursing. By Marian G. Randall, R. N., a member of the technical staff of the Milbank Memorial Fund. The Macmillan Company, New York, N. Y. 1937. Cloth. 170 pages. Price $2.00 net.

Requirements of applicants for positions in the public health field are discussed thoroughly in this book, both from the educational and personal viewpoint. Through the detailed use of charts, etc., it is shown that educational standards are being raised constantly and that, as a consequence, salaries in any particular group level are rising also.

Miss Randall paints with glowing words a picture of the complete process of selection of personnel in the health department, including even the personal interview. The question of pensions, sick leaves and vacations is gone into thoroughly.

The book is a gold mine of statistical data but it seems that Miss Randall goes to a great deal of trouble to prove that the higher the educational qualifications, the higher the salary. However, the subject is presented vividly, concisely, and in a fascinating manner.

V. M. O.

**Mentality and Homosexuality.** By Samuel Kahn, B. S., M. A., Ph. D., M. D. Formerly on the Psychiatric Staffs of Kings County and Kings Park State Hospitals, New York; New York County Penitentiary, and Sing Sing State Prisons, New York; Associate Attending Neurologist at the City Hospital and Central Neurological Hospital, New York; Instructor in Psychiatry and in Education, New York University; Chief Resident Psychiatrist of Gallinger Memorial Hospital; Clinical Professor of Neurology and Psychiatry at Georgetown and George Washington Universities; Head of the Department of Psychology, Commerce University of the South, Atlanta, Georgia. 249 pages. Boston, Massachusetts: Meador Publishing Company. 1937. Cloth. $3.00.

Mentality and Homesexuality is the result of a study of homosexuals made on Blackwell's Island at the New York County Penitentiary for male prisoners and at the Women's Workhouse for female prisoners. This is a study of one type of homosexual: those who are incarcerated.

A true homosexual is one whose passions and attractions are for members of his own sex rather than for members of the opposite sex. Hence, a homosexual is not only in love with a member of his own sex but has an emotional make-up of the opposite sex.

Five hundred male and female homosexuals were studied. Seventy-five of these were studied in detail. The four periods of love developments and the causes of homosexuality are discussed. The method used in studying these individuals and the results of intelligence tests and composite case histories are given. Emotional instability, wanderlust, usage of drugs and members of large families are important facts brought out in the majority of these individuals. It is rather interesting to note that 50 per cent of these homosexuals indulged in heterosexual acts prior to their homosexual indulgence.

Perversions and the terms used are discussed in a separate chapter. A discussion then follows as to the cause of homosexuality and the treatment of the condition. So far as causes go it seems that homosexuality may develop as a result of children sleeping together at home or in boarding schools, and also as a result of sleeping with adults.

The average mental years of these incarcerated homosexuals was 12 years, 6.89 months. The average in chronological years was 27 1/3. The I. Q. ranges around the border line or slightly above; but they are usually not mental defectives.

There are seven appendices. Some of the material in these is a repetition of material that has already been given.

W. H. Y. S.

**Handbook of Health Education: A Guide For Teachers in Rural Schools.** By Ruth E. Grout, Director of Health Education Study, Cattaraugus County, New York. 298 pages. Doubleday, Doran and Company, Inc., Garden City, New York. 1936. Cloth. $1.80 net.

Public health workers and school teachers are becoming increasingly conscious of the need of health education. The many articles and books appearing indicate the varying ideas of what constitutes a sound program. This handbook is timely and, based on the four-years' experience of more than one hundred teachers of Cattaraugus County, New York, is a valuable addition. Here, teachers outline for teachers a program of health education for small rural schools.

Part One deals with organizing and applying the program. Proceeding on the established fact that the entire day at school should be a "Healthful School Day" it deals with everything that influences the pupil that day. Environment, health services, home relationships and health instruction are considered. A chapter on "Health Aims" omits nothing in regard to the individual or the community.

Part Two outlines activities for personal hygiene and growth. Chapters on health integrations and health aspects of the habits of other nations illustrate good lessons in an attractive manner. Children's pets and their habits are studied and compared to teach health lessons. No mention is made of the danger that these pets may be carriers of disease.

The object of the activities outlined in Part Three is the development of a healthy individual in a healthy community. These are grouped and adapted to the various grades. The child's interest is aroused and maintained by his own participation.

The program is flexible and can be adapted to the needs of any particular school and community. It can be incorporated or identified with the regular school program.

Throughout the text the writer presents only those facts of hygiene and health that are scientifically sound and practicable. Its practicability adds to its worthwhileness.

The bibliography shows a long list of reference books which, though selected for availability to Cattaraugus County, indicates the large amount of material that has been written on this and related subjects.

J. S. H.

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**The Technic of Local Anesthesia.** By Arthur E. Hertzler, A. M., M. D., Professor of Surgery in the University of Kansas. 6th edition. Cloth. 142 illustrations. Pp. 277. C. V. Mosby Company, St. Louis, 1937. Price $5.00.

This little book, prepared by one of our country's leading surgeons, is an extremely clear, simple and concise presentation of the technic of administering local anaesthesia. The methods presented are those which the author has found most useful, and, thus, space is not utilized in defending or condemning the methods of others.

The author begins by discussing the drugs employed, the apparatus required, preparation of the patient and the general principles of producing local anesthesia. From this he proceeds on to a detailed description of administering a local anesthetic in minor operations, then to all types of operations from scalp to toe-nail. Anatomic landmarks are given, and each section is adequately illustrated. In a general way the author presents the indications for local anesthesia.

The book will be found most useful to any physician or surgeon who wants to profit by the vast experience of the author in producing local anesthesia over the various parts of the body.

W. F. Q.

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**The Pneumonokonioses (Silicosis): Literature and Laws: Book III.** By George G. Davis, M. D., Ella M. Salmonsen and Joseph L. Earlywine. Pp. 1.033. Chicago Medical Press, Chicago, Ill. 1937.

This volume is the third in a series dealing with the literature, laws and bibliography of the pneumoconioses. Book I is a compilation of all the references gathered from the literature of the world, beginning with Agricola's "De re Metallica" and ending with the last published reference in 1933. Book II contains all the 1934 references from the world's literature added during the year, with a good many of the leading articles annotated. The present volume, Book III, is divided into two parts: Part One includes abstracts of 701 different articles published during 1935-1936 in the United States and foreign countries on all phases of the pneumoconioses. Part Two consists of the occupational disease laws pertaining to the pneumoconioses (silicosis) now in force in the United States and several foreign countries.

The book represents a vast amount of work by the authors, and it will be found most useful to industrial physicians and hygienists, attorneys handling medicolegal cases, and to insurance carriers.

W. F. Q.

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# *Truth About Medicines*

## ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following devices have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Rose CW-6 Radiathermy Unit.—This unit is recommended for medical and surgical uses. Several terminal outlets are provided so that the inductance cable, the conventional condenser electrode or surgical electrodes for cutting and coagulating may be employed. The firm presented evidence to substantiate the claims made concerning the heating properties of the unit. The unit was investigated in a clinic acceptable to the Council and was found to perform as successfully as other units of the same general type. E. J. Rose Manufacturing Company, Los Angeles.

Aloe Improved Cold Ray Quartz Lamp, Model CF-7890 (standard portable combination); Model CF-7894; Model 87; Aloe Standard Pedestal Cold Ray Quartz Lamp, and Aloe Standard Portable Cold Ray Quartz Lamp. These lamps are of the mercury glow ultraviolet type. All of these lamps provide for an orificial burner except Model CF-7894. Therapeutically, the first three lamps mentioned generate sufficient intensity of ultraviolet radiation to produce a perceptible erythema on the average untanned skin in fifteen seconds at 12 inches from source to patient, forty seconds at 20 inches, and ninety seconds at 30 inches. The Aloe Standard Pedestal and Portable Models generate ultraviolet radiation of sufficient intensity to produce a perceptible erythema on the untanned skin in 0.5 minute at 12 inches from source to patient, 1.4 minutes at 20 inches, and 3.1 minutes at 30 inches. The orificial burner produces an erythema on untanned skin in five seconds with burner in contact with

the skin, and fifteen seconds with burner at 1 inch from the skin. The A. S. Aloe Company, St. Louis. (J. A. M. A., Jan. 8, 1938, p. 128.)

Rose CX-2 Radiathermy Unit.—This unit is designed for medical and surgical use. It has four terminal outlets permitting the use of four nominal frequencies, 16, 12, 9 and 6 meters. The various types of electrodes available with this unit are the conventional cuffs, inductance coil and electro-surgical attachments for coagulating and cutting current. The model is portable but can also be used in a cabinet. The firm submitted evidence to substantiate the claims made for the heating properties of the unit. It was tested in a clinic acceptable to the Council and found to be satisfactory. The E. J. Rose Manufacturing Company, Los Angeles. (J. A. M. A., Jan. 29, 1938, p. 371).

## PROPAGANDA FOR REFORM

Gonococcus Filtrate (Corbus-Ferry) Not Acceptable for N. N. R.—Since 1931, the Council on Pharmacy and Chemistry has considered from time to time this product, which is a gonococcus bouillon filtrate proposed for the treatment of gonorrhea and marketed by Parke, Davis & Co. Two preliminary reports have been published (The Journal, Feb. 13, 1932, and May 18, 1935), and each time the Council has postponed consideration to await the development of more convincing evidence of the therapeutic value of the product. In the meantime the firm has made efforts to collect the needed clinical data and has abstained from promoting the product actively. The occasion of the Council's latest consideration of the product was the presentation by the firm of a booklet with references to recent literature concerning Gonococcus Filtrate (Corbus-Ferry). The Council considered the literature cited by the firm, together with other reports which were available, and concluded that satisfactory evidence for the use of this product is lacking. Gonococcus Filtrate (Corbus-Ferry) Parke, Davis & Co.) was therefore declared not acceptable for N. N. R. (J. A. M. A., Jan. 1, 1938, p. 47).

Gonorrhea and Sulfanilamide.—In view of the widespread interest in sulfanilamide and related compounds in the treatment of gonorrhea, the work of Johnson and Pepper (Weekly Roster & M. Digest 33:465 (Dec. 11) 1937) on this subject is of interest. Twenty-four patients were given a benzyl sulfanilamide (p-benzylamino-benzene-sulfonamide), a drug as yet not on the market in this country, and seventy-five were given sulfanilamide (thirteen were given courses of both drugs). Of the twenty-four patients given this benzyl sulfanilamide, fourteen were treated for ten consecutive days with a minimum ten day dosage of 600 grains. Only two of the entire group seemed to be improved. Of the seventy-five patients given oral daily divided doses of sulfanilamide, sixty-four were seen sufficiently long to analyze the results. Of this group more than half represented failures, based on an arbitrary ten day standard. Fifty-five per cent of the sulfanilamide group and 50 per cent of the benzyl sulfanilamide group showed toxic symptoms. As a result of the somewhat disappointing observations the authors feel this type of therapy should not be employed in the routine treatment of outpatient gonorrhea. This work represents an additional argument for the careful administration of this group of drugs, since they appear to be of considerable value in some cases of the disease. (J. A. M. A., Jan. 1, 1938, p. 51).

Viosterol and Psoriasis.—Cedar and Zon (Pub. Health Rep. 52:1580 (Nov. 5) 1937) administered massive doses of viosterol without local treatment of the lesions, dietary adjustment or any other therapeutic measure. A series of fifteen patients from 30 to 50 years of age with chronic widespread psoriasis were given from 300,000 to 400,000 units of vitamin D as viosterol. Eleven of the fifteen subjects showed complete involution of the psoriasis within six to twelve weeks' time. At the end of the period of treatment, three patients showed incipient symptoms of excessive vitamin D dosage. All the subjects exhibited an elevation in the level of blood calcium. There was a recurrence in some of the patients, though the degree of severity was much less than originally observed. Although the proposed treatment would appear to be safe, the authors suggest not only that there may be a smaller effective dose of viosterol but also that certain accompanying products of the irradiation of the ergosterol may be the potent factor. (J. A. M. A., Jan. 8, 1938, p. 133).

# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

Vol. 7, No. 10 Montgomery, Alabama April 1938


## PTOMAINE POISONING*

### A MISNOMER


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It is not uncommon to read, in our daily papers throughout the United States, spectacular accounts of acute food poisoning, set forth under glaring bold faced type as Ptomaine Poisoning.

If the opening sentence is not to the effect that "ptomaine poisoning makes a number of persons ill" or "kills well known 'bunk' county farmer," then the fact is sure to be set down somewhere within the body of the account, or more particularly at the end, in order to leave a lasting impression as to the alleged cause of the trouble.

For sometime past I have collected from various newspapers clippings with reference to food poisoning outbreaks. Many of these have been furnished me through the kindness of Dr. Roland Harper, Statistician and Botanist for the Alabama Geological Survey. In nearly all of these, ptomaines are accused directly or indirectly of being the culprit involved. Quotations from two articles with fictitious names of people and places inserted will suffice as a type.

From a Mississippi paper we read: "Funeral services for Mr. X, well known farmer, who died yesterday as a result of ptomaine poisoning, will be held today." Another reads: "The condition of the others, ill yesterday, was reported better by a Youngtown, Ohio, physician who attributed the illness to ptomaine poisoning."

From Oregon we read the headline, "53 Students Stricken." "Fifty-three 'Y' college students were ill today with what physicians said was ptomaine poisoning resulting from food eaten in the college dining room."

The word ptomaine, like fire, tornado, flood, murder and suicide, makes for the spectacular. It is used loosely by newspapers in particular and by the laity in general, and not infrequently by physicians without conveying any meaning as regards true cause.

Rosenau[1] states that the term ptomaine poisoning as applied to acute food poisoning is unscientific, misleading and incorrect. He says, "A study of this subject for over five years has convinced me that there is no such thing." According to Savage[2] the term is clearly incorrect and entirely unsound. Jordan[3] states that the term is a refuge from etiologic uncertainty. Chapin[4] says that the term is a good one to forget while Novy[5] states that this rather popular expression is a survival of a period when it was believed that bacteria produced their injurious effects by means of basic or alkaloid-like products.

The term was coined by the Italian toxicologist, Selvi, in 1870, from ptoma, a corpse —cadaverin, one of the best known of the ptomaine group, having been isolated from this source. This was in the days before we knew anything about bacterial toxins either intracellular or extracellular.

Rettger,[6] writing in The Newer Knowledge of Bacteriology, by Jordan and Faulk, states: "Not much credence is given today to the idea of ptomaine poisoning, as was done several years ago, and bacterial poisons are now generally regarded as the toxic

*From the Department of Bacteriology, University of Alabama School of Medicine.

Read at a meeting of the Northwestern Division of the Association, Tuscaloosa, January 21, 1938.

1. Rosenau, M. J.: Preventive Medicine and Hygiene, 6th ed., New York, D. Appleton-Century Co., Inc., 1935, p. 773.
2. Savage, W. G.: Studies Upon Toxicity of Putrid Food, J. Hyg. 20:69 (July) 1921.
3. Jordan, E. O.: Text-Book of General Bacteriology, 10th ed., Philadelphia, W. B. Saunders Co., 1931.
4. Rosenau.
5. Ibid.
6. Rettger: Newer Knowledge of Bacteriology.

products of specific organisms, like *Bacterium enteritidis* and *Clostridium botulinum*.

Simonds[7] states that ptomaines are not true bacterial toxins in that they are not specific products of bacterial metabolism and do not induce the formation of antibodies when injected into animals. Many diseases formerly believed to be due to poisoning with ptomaines are now known to be actually infectious.

### NATURE OF PTOMAINES

Chemically, ptomaines are ammonia substitution compounds and are produced by the splitting off of carbon dioxide from the acid group of amino acids. Most ptomaines are inert, or are no more poisonous than the corresponding ammonia salts.

Ptomaines, in sharp contradistinction to bacterial toxins, are nonspecific in that they are not products of intracellular metabolism; that is, they are not endocellular nor extracellular toxins, nor do they possess any characteristics of such. Essentially they are protein-split products of putrefaction produced by the action of a large variety of non-pathogenic bacteria on animal or vegetable protein. While the formation of ptomaines is dependent upon the nature of the substrate, the formation of true bacterial toxins appears to be independent of the composition of the medium in which grown. On the other hand, highly pathogenic bacteria which are not active in attacking protein may produce little or no ptomaines.

A few ptomaines are physiologically active, even poisonous when injected parenterally. None is actively poisonous when taken by mouth, and even active ones do not produce nausea, vomiting, colic and diarrhea, the outstanding clinical manifestations of acute food poisoning.

The exhaustive study of the subject of food poisoning in Great Britain by Savage and White[8] covered a period of several years, involving one hundred distinct outbreaks and incriminating such food stuffs as cheese, canned tomatoes, canned salmon, canned apricots, milk, shellfish (cockels), liver gravy, beef brawn and ice cream. In no instance did they find any evidence that could be attributed to ptomaines, all cases studied being of distinct bacterial origin. Vaughn[9] in 1895 detected in poisonous cheese an active agent to which he gave the name tyrotoxicon. However, he later refuted the idea that this was the etiologic factor involved.

As stated, ptomaines result from putrefaction. Food which had undergone such change would naturally be rejected through the sense of smell and taste. Ordinary food poisoning results from food which is quite normal in appearance and taste and in which the presence of food bacteria or their products cannot ordinarily be detected.

Conversely it is an established fact that certain foods which have undergone even extreme putrefaction may not be poisonous. Some foods, such as cheese, are putrefied purposely to improve flavors. Likewise in some countries the inhabitants have developed queer tastes for and seem to thrive on "high meats," buried eggs and fish, the desired flavor of which is due, for the most part, to putrefactive changes.

Many outbreaks of food poisoning have been carefully studied in this country and not in one single instance have ptomaines been shown to be the cause.

Due to these facts and to the epidemiologic and bacteriologic study of an increasingly large number of outbreaks of food poisoning, it seems justifiable to assert that, aside from botulinus poisoning, all so-called ptomaine poisoning is due either to acute bacterial infection, or to certain chemical or plant poisons.

Food poisoning, in order of frequency and importance, is caused by

1. Actual infection of the gastro-intestinal tract,
2. Toxemia—botulism,
3. Chemical poisons—metallic salts, and
4. Plant poisons.

### FOOD INFECTION

Food infection is caused by *B. enteritidis* (*Salmonella enteritidis*) and *B. aertrycke* (*Salmonella aertrycke*), the so-called hog cholera bacillus. They are members of the Salmonella or paratyphoid group and are the forms par excellence of this group causing food poisoning. They can be quite readily distinguished from other members of the group, such as *B. paratyphosus A* (*Sal-*

7. Ibid. p. 772.

8. Savage, W. G.; and White, P. B.: Special Report Series 92, Medical Research Council Reports, London, 1925.

9. Vaughn, V. C.: Epidemiology and Public Health, St. Louis, C. V. Mosby Co., 1922, vol. 2, p. 166.

*monella paratyphi*) and *B. paratyphosus B* (*Salmonella schottmulleri*), by cultural and immunologic tests. *B. enteritidis* was first isolated by Gartner in 1888 in the classical meat poisoning outbreak at Frankenhausen, the source being meat from a cow slaughtered because the cow was ill from enteritis. One man who ate 800 grams of raw meat developed gastro-intestinal symptoms in two hours and died within thirty-six hours. Infections in a number of different animal species may be caused by *B. enteritidis*, but bovine sources of human food poisoning seem relatively frequent. Milk, beef and veal are the more commonly reported vehicles of infection. Another source of human infection with *B. enteritidis* appears to be accidental contamination of food with commercial rat viruses (ratin) which usually contain this organism. Several recorded outbreaks have been traced to this source.

*B. aertrycke* has been reported in a relatively large number of human food poisoning outbreaks. Savage and White,[8] in their study of one hundred outbreaks in Great Britain, record the positive isolation of *B. aertrycke* in three-fourths of their cases, and consider this organism the probable cause in many others.

Next found in order of frequency was *Salmonella enteritidis*. From all evidence accumulated, as a result of a number of years' study, they have not found a single instance in which *Salmonella schottmulleri* (*B. paratyphosus B*) was the cause. Further, they feel that cases reported as due to paratyphoid B infections were in reality due to *Salmonella aertrycke*, since all strains of paratyphoid bacilli studied came from paratyphoid fever and none possessed the irritant qualities necessary to produce typical facies of acute food poisoning.

*Symptoms*: The acute symptoms due to food infection are caused by the actual presence of the organisms in the intestinal tract and their elaborated endotoxins. The onset is usually six to twelve hours following ingestion of contaminated food. Occasionally it may be four hours or less; it may be seventy-two hours or more. The clinical picture is that of an acute gastro-enteritis, with rapid rise in temperature, prostration, rapidity of the pulse, nausea, vomiting and painful diarrhea. Either organism may cause death, although the mortality rate is low. In one epidemic it was as high as 7 per cent.

Another type of bacterial "food poisoning" is caused by miscellaneous bacteria, of which the staphylococci or common "pus germs" are of major importance.

This particular class of organisms differs from the Salmonella group in their mode of action in that they are capable, under conditions not well understood, of elaborating a potent exotoxin recoverable in sterile broth filtrates. It is a specific enterotoxin and unlike other true soluble bacterial toxins, streptococcus scarlatinal toxin not excepted, withstands a temperature of boiling water for thirty minutes.

The ability to produce enterotoxin is not limited to any particular kind of staphylococcus, for not only do strains isolated directly from epidemiologically implicated food stuffs give rise to enterotoxin, but strains from normal human throats, septicemia, osteomyelitis and local abcesses have also been shown by Jordan and others to do the same thing. Over thirty outbreaks definitely shown to be due to staphylococci and involving over fifteen hundred individuals have been reported to date. Barber,[10] 1914, was the first to report an outbreak in the Philippines from the milk of a certain cow. Jordan[11] and his co-workers, likewise Dack, Cary, Woolpert, Oran, Wiggers,[12] Ramsey, Tracey,[13] et al, have all reported outbreaks. In these outbreaks such foods as milk, layer cake, cheese, chicken gravy, coffee cake, tongue, sandwiches, cream filled doughnuts, vanilla slices, chocolate eclairs and cream puffs have been involved. The first outbreak due to chocolate eclairs was reported by the writer in 1933,[14] and comprised 150 marked cases among the girls in an Alabama educational institution following a dinner at which chocolate eclairs were served. Staphylococci were

10. Barber: Philippine J. Sc. 9:515, 1914.

11. Jordan, E. O.: Staphylococcus Food Poisoning, J. A. M. A. 97:1704 (Dec. 5) 1931.

12. Dack, G. M.; et al.: Outbreak of Food Poisoning Proved to be Due to Yellow Hemolytic Staphylococcus, J. Prev. Med. 4:167 (Mar.) 1930.

13. Ramsey, R. J.; and Tracy, P. H.: Food Poisoning Probably Caused by Orange Colored Staphylococcus from Udders of Apparently Healthy Cows, Proc. Soc. Exper. Biol. & Med. 28:390 (Jan.) 1931.

14. McBurney, R.: Food Poisoning Due to Staphylococci; Report of Outbreak, J. A. M. A. 100:1999 (June 24) 1933.

isolated from the eclairs, and nine volunteer medical students were made extremely ill following ingestion of bacterial-free broth filtrates in which the organisms had been grown. This type of food poisoning is marked by very sudden onset, coming on in from 1 to 3 hours following ingestion of contaminated food. The symptoms are somewhat similar to the type mentioned above except, perhaps, for more frequent and greater number of vomiting and diarrheal attacks. Extreme prostration is also noteworthy in these cases. More recently, Dowling,[15] in a preliminary report, and Denison,[16] in a detailed account, reported an outbreak due to staphylococci recovered from cream puffs sold in Birmingham and vicinity and involving one hundred and twenty-two cases.

At least two outbreaks due to streptococci in cheese have been reported by Linden, Turner and Thom,[17] although definite proof is incomplete.

A number of outbreaks of food poisoning attributed to *B. proteus* have been reported. The presence of these organisms is not significant as they are found in decomposing animal matter, and are probably not infrequently swallowed with food. Miss Bengston[19] has collected and subjected many of these cases to a critical analysis. She concludes that definite proof of the causal relationship between the organisms isolated and the illness is lacking in all instances. The writer,[18] determining the keeping qualities of sausage containing various types of seasoning, found *B. proteus* in samples of sausage meat which was sold in local shops and from which no food poisoning occurred.

### TOXEMIA—BOTULISM

Toxemia due to botulism is well known. The organism *Clostridium botulinum* was isolated from pickled ham by van Ermengem in 1896 and is a true toxin producer. Of 34 individuals partaking of the ham all were attacked, ten severely.

The organism is primarily a saprophyte, but, living under anerobic conditions in incompletely sterilized jars or cans of meat, beans, asparagus, olives, corn, beets and other food stuffs, it forms a powerful poison within the food material; so strong that 0.000001 cc. will kill a 250 gm. guinea pig in four days. In one outbreak, nibbling the portion of a pod of string beans, in another tasting a spoonful of spoiled corn, caused death in man.

Botulism was recognized by German clinicians long before the etiologic agent was discovered. From 1793 to 1913, cases totaling 1,212 with 365 deaths have been tabulated by Dickson,[20] as reported by Mayer.

In the United States and Canada from 1899 to 1926 and including one from England, there have been reported 147 outbreaks with a total of 504 cases and 337 deaths, a mortality of 67 per cent.

*Symptoms*: Symptoms usually occur within twenty-four hours following ingestion of the offending food. The preformed toxin produces symptoms referable to the nervous system. Disturbances of vision, such as dimness, sometimes blindness, dilatation of the pupils, photophobia, blepharoptosis, loss of reflex to light; and vertigo, difficulty in swallowing and talking, progressive muscular weakness and constipation due to complete paralysis of peristalsis should easily mark it as separate and distinct from the other types of food poisoning mentioned. Prevention lies in thorough canning and cooking, especially of home-canned food.

### CHEMICAL POISONS

Of the other types of poisoning from food, the scope of this paper allows little discussion. Suffice it to say that poisoning from arsenic has occurred where numbers of persons have been stricken. I recall a recent outbreak where a member of the family by mistake dumped a sack containing an arsenical preparation, which had been bought for dusting potato plants, into the flour bin. Biscuits eaten later poisoned members of the family and visitors who partook of them. Acute arsenic poisoning generally strikes within the hour, anywhere from eight to thirty minutes.

15. Dowling, J. D.: Outbreak of Food Poisoning in Birmingham Involving 122 Cases; Preliminary Report, J. M. A. Alabama 5:424 (June) 1936.

16. Denison, G. A.: Epidemiology and Symptomatology of Staphylococcus Food Poisoning; Report of Recent Outbreaks, Am. J. Pub. Health 26: 1168 (Dec.) 1936.

17. Linden, B. A., et al.: Food Poisoning from Streptococcus in Cheese, Pub. Health Rep. 41: 1647 (Aug. 6) 1926.

18. Unpublished reports.

19. Bengston: J. Infect. Dis. 24:428, 1919.

20. Dickson: Monograph No. 8, Rockefeller Med. Res., N. Y., 1918.

An outbreak of thallium poisoning in 31 Mexicans in California was reported by Munch and Ginsburg and Nixon.[21] The Mexicans had illegally obtained a sack of barley treated with 1% thallium sulphate to be used for rodent extermination. Tortillas made from the barley resulted in symptoms in 20 individuals in from 1 to 3 days. Six died within 16 days.

There is likewise the possibility of poisoning due to the use of insecticidal sprays, washes and powders on fruits and vegetables not properly cleansed before consumption.

### POISONOUS PLANTS

Chestnut[22] estimates that in the United States there are only about thirty species of plants which have been associated with human poisoning and that most of such cases must be considered as extremely rare accidents. Poisoning from oxalic acid contained in soup made from sour grass, a species of sorrel, occurred in New York in 1916. Two grains of oxalic acid were found in each ounce of leaves and four grams in each ounce of the stems. The soup contained ten grains per pint. Robb[23] reports a fatal case of oxalic acid poisoning from eating dried rhubard leaves.

A fungus developing upon rye is responsible for ergot poisoning. Mushroom poisoning due to mistaking the poisonous for the edible species is well known and occasionally seen.

In conclusion it may be said that the solving of the cause of the various types of food poisoning mentioned is based upon the gathering of epidemiologic data with respect to each outbreak. The onset and symptoms following ingestion of foods, plus bacteriologic analysis of them (in some instances of feces) and occasionally chemical examination, where chemical poisons are suspected, will often determine the cause. Certainly in the light of the facts presented the term ptomaine poisoning has no place in describing outbreaks of foods poisoning and should be relegated to the rubbish heap of antiquated and misleading terms.

21. Munch, J. C.; et al.: 1932 Thallotoxicosis Outbreak in California, J. A. M. A. 100:1315 (April 29) 1933.

22. Science 15:1916, 1902.

23. Robb: J. A. M. A. 73:627, 1919.

## ON THE RELATION OF EPITHELIOMA TO CHRONIC ULCERATION OF THE SKIN

### WITH REPORT OF FIVE CASES

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In the literature are a few isolated reports dealing with the relation of epithelioma to chronic skin ulceration. Fordyce[1] states that chronic skin diseases, such as lupus vulgaris, lupus erythematosus, Darier's disease, seborrheic dermatitis and psoriasis offer favorable bases for the development of epithelioma. Epitheliomata arising on pellagrous dermatitis have been observed by Lynch,[2] Rutledge and Kelly,[3] and others. Supervention of epithelioma in psoriasis has been reported by Gray,[4] Flint and Gordon,[5] Wright and Friedman,[6] and others. The frequency of carcinoma and lupus was given as 3.09% among 906 cases by Mallinckrodt.[7] Cancer developing from chronic fistula about the anus and from chronic ulceration about osteomyelitic sinuses was recorded by Eller and Anderson.[8] Bloodgood[9] reported a case of cancer developing from a blastomycosis lesion. De Jong, Meyer and Martineau[10] contributed a case of cancer which developed in an old

1. Fordyce, J. A.: Pathology of Malignant Epithelial Growths of Skin, J. A. M. A. 55:1624, 1910.

2. Lynch, K. M.: Epithelioma Developing in Pellagrous Dermatitis, J. Cancer Research 2:131, 1917.

3. Rutledge, W. U.; and Kelly, R.: Epithelioma Secondary to Pellagrous Dermatitis, Arch. Dermat. & Syph. 23:1072 (June) 1931.

4. Gray, A. M. H.: Rodent Ulcer Occurring in Patch of Psoriasis in Gluteal Cleft, Brit. J. Dermat. 24:325, 1912.

5. Flint, E. R.; and Gordon, J.: Case of Squamous Carcinoma of Scalp, Associated with 2 Rodent Ulcers on Shoulder Originating in Patch of Psoriasis, Brit. J. Surg. 16:321 (Oct.) 1928.

6. Wright, C. S.; and Friedman, R. J.: Psoriasis and Multiple Superficial Epithelioma, Arch. Dermat. & Syph. 27:70 (Jan.) 1933.

7. von Mallinckrodt-Haupt, A.: Lupus und Karzinom, Dermat. Ztschr. 60:138 (Jan.) 1931.

8. Eller, J. J.; and Anderson, N. P.: Cancer Supervention in Skin Diseases; Clinical, Microscopic and Therapeutic Considerations, J. A. M. A. 94:382 (Feb. 8) 1930.

9. Bloodgood, cited in 8.

10. DeJong, Meyer and Martineau, cited by Knox.[18]

ulcer on which a tar preparation had been used for eight years to allay itching.

Kilbourne[11] states that a malignant condition is to be suspected whenever there is a hard, rolled border which bleeds easily. White and Weidman[12] have issued warning against the confusion of epithelial hyperplasias with early epitheliomata. They have suggested three graduations of hyperplasias, the third grade of which, as they state, may be readily confused with Grade I cancers. They further state that the presence of mitotic figures and invasion of the skin below the level of the sweat glands are important aids in differentiation. Kilbourne states: "I fear, however, if one awaits until, as they (White and Weidman) suggest, the cells have penetrated to the level of the sweat glands, one may wait too long." In Kilbourne's case there were metastases already in the inguinal lymph glands.

It has been poined out that varicose ulcers present all the conditions favorable for the development of cancer, such as low-grade inflammatory process chronicity, irritation from various stimulating applications used in the treatment, the age of the patient, etc.[17, 18, 8 and others] Cancer in the extremities is reported as a rare occurrence. Broders[13] of the Mayo Clinic observed 12 cases among 2,000 cutaneous cancers. De Asis[14] of St. Louis recorded 18 cases of the lower extremities in a group of 6,766 cancers of the skin. Simpson and Anderson[15] cite 24 cases of the upper and lower extremities among 500 epitheliomata. Tenopyr and Silvermann[16] found among the records of Kings County Hospital, from 1921-1931, fourteen (14) cases of epitheliomata of the lower extremities, four of which were related to chronic leg ulcers. During the same period over 1,000 cases of chronic leg ulcers were admitted.

Gottheil[17] reported 3 cases and collected 10 others from the literature in which cancerous degeneration appeared in chronic leg ulcers. He attributed the development of cancer in these cases to epithelial irritation, and this view was supported by Hazen of Washington, D. C., who, in discussing Gottheil's paper, mentioned a personal case in which cancer developed in an old ulcer simultaneously with an eczema which followed a vein operation. Knox[18] reviews the literature up to 1925 and cites a total of 59 cases of epithelioma supervening on chronic varicose ulcers. She states that 52% were in men and 42% in women, the sex not being reported in the remaining cases. The ulcers had existed an average of 21 years and evidence of malignant change had occurred within one year of hospitalization.

The following are records of cases which have been observed at the Hillman Hospital during the years 1935 to 1937 inclusive. As will be noted all of these cases originated from mechanical trauma.

### REPORT OF CASES

*Case* No. 100757. F. H., a 62 year old male street peddler was admitted to the surgical service August 17, 1935, with a complaint of chronic ulceration of the left foot. History revealed that, twenty years before, the patient had a small pimple on the bottom of both heels. The pimple on the left heel grew gradually, while that on the right healed. The lesion on the left foot progressed and for the past six years he had been unable to walk, and his foot was painful. There was no family history of cancer. On examination the left heel, plantar surface of the foot, and Achilles region showed an extensive ulceration and destructive lesion which was discharging pus and bled easily. The left inguinal and femoral lymph glands were enlarged, and the veins of his leg were quite distended. Otherwise the examination was essentially normal. Laboratory tests showed routine blood and urine analyses to be essentially normal. His Wassermann and Kline tests were four plus. An amputation below the knee was done and the lymph glands of the femoral region were irradiated with x-ray. The wound had almost healed on discharge to the outpatient clinic six weeks later. Pathological diagnosis was Grade II epidermoid carcinoma. Figure 1.

*Case* No. 103527. J. B., 79 year old white male farmer was admitted to the surgical service December 16, 1935, with a complaint of pain and

11. Kilbourne, N. J.: Leg Ulcers of Unrecognized Etiology, J. A. M. A. 98:1955 (June 4) 1932.

12. White, C.; and Weidman, F. D.: Pseudo-Epitheliomatous Hyperplasia at Margins of Cutaneous Ulcers, with Especial Reference to Histologic Diagnosis, J. A. M. A. 88:1959 (June 18) 1927.

13. Broders, A. C.: Squamous-Cell Epithelioma of Skin, Ann. Surg. 73:141 (Feb.) 1921.

14. DeAsis, cited by Tenopyr and Silverman.[16]

15. Simpson and Anderson, cited by Tenopyr and Silverman.[16]

16. Tenopyr, J.; and Silverman, I.: Relation of Chronic Varicose Ulcer to Epithelioma: Based on Records of Over 1,000 Chronic Leg Ulcers, Ann. Surg. 95:754, 1932.

17. Gottheil, W. S.: Cancerous Degeneration in Chronic Leg Ulcer, J. A. M. A. 59:14, 1912.

18. Knox, L. C.: Epithelioma and Chronic Varicose Ulcer, J. A. M. A. 85:1046 (Oct. 3) 1925.



Figure 1
Case No. 100757. Photomicrograph shows epithelial pearls and hyperplastic epithelium. Note proximity to large blood vessels. Epidermoid carcinoma Grade II.

gangrene of the right hand. He had been bitten on the dorsum of the right hand by a dog eight years before, and there had followed a slow growing nodule which broke down, exuding a creamy yellow material. Gradually the area had ulcerated, and had begun to spread, forming multiple ulcers, and disfiguring the hand from scar contracture. For two years he had experienced severe pain in the hand. Examination revealed a senile man with marked peripheral arteriosclerosis. On the dorsum of the right hand were multiple large ulcers which exuded serous material. The first three fingers were large and disfigured. Kline test, routine blood and urine analyses were negative. On December 18, 1936, a mid-forearm amputation was done and the subsequent course was uneventful. Pathological examination showed an epidermoid carcinoma Grade I. The patient was discharged to the outpatient clinic on the eighth postoperative day and was seen at intervals until healing was complete, February 10, 1936. Figures 2 and 3.

*Case* No. 103424. O. S., a 58 year old colored male coal miner was admitted to the surgical service December 11, 1935, with a complaint of chronic ulceration of the left foot. About 10 years before entry his left foot had been crushed when an iron rod fell across the metatarsal arch. The wound healed except for a crack on the plantar surface which broke down and formed a large ulcer about six years before the present admission. On July 22, 1930, he was admitted to the surgical service for treatment of the ulcer.



Figure 2



Figure 3

Case No. 103527. Figure 2 is section of hand shown in Figure 3. Pearl formation and infiltrating epithelial fronds. below coil gland (center). Epidermoid carcinoma Grade I.

Wassermann and Kahn tests were four plus. With hot wet dressings and antiluetic treatment the ulcer healed entirely and the patient was discharged five weeks after admission. In August, 1932, he was readmitted to the surgical service for care of a recurrent ulcer at the original site on the plantar surface of the left foot. During the interval he had taken antiluetic treatment for a short while. His serology remained positive by Kahn test only. He was treated with magnesium sulphate soaks and neosalvarsan and thiobismol and after three weeks with little improvement of the ulcer he was discharged to the clinic for further antiluetic treatment.

On February 24, 1934, he was admitted to the orthopedic service with a diagnosis of traumatic gangrene of the left foot. He remained in the hospital for seven weeks. His blood pressure was 160 systolic, 94 diastolic (first time abnormal), Wassermann and Kahn tests were negative on three occasions and a biopsy was diagnosed "cornified epithelium." A smear from the ulcer failed to show yeast. He was given a mixed antiluetic treatment, refused lumbar puncture and was discharged on request against advice.

He was seen in the surgery clinic December, 1935, and was again admitted. He had been unable to walk on the left foot for six years. Examination showed the left foot to be deformed by a large, necrotizing, malodorous and eroded ulcer covering the plantar surface of the longitudinal arch. The ulcer was tender on deep pressure and bled easily. The foot was flexed plantarly and inverted by contraction deformity. The lymph glands of the femoral and inguinal regions were large but not tender. Wassermann and Kline tests were four plus and his white blood count was 14,600 with 78% polymorphonuclears.

An amputation at the junction of the upper and middle thirds of the left leg was done. The frozen section showed epidermoid carcinoma Grade I. Convalescence was uneventful except for slight serous drainage from the stump. Patient refused a biopsy of the gland in the iliofemoral region and was discharged to the outpatient clinic three weeks after admission. The stump had practically healed eight weeks later. Figures 4 and 5.

*Case* No. 115904. W. W., a 51 year old colored male iron ore miner was admitted to Hillman Hospital July 17, 1937. He was sent in for treatment of an ulcer of the foot. He stated his right heel was badly crushed in an ore car wreck in the mines in 1920. Since the primary injury the wound healed five times but each time ulcerated again. The longest time it remained healed was three years, from 1921 to 1924. At the time of admission it was in a more severe condition than it had been at any previous time and he had not been able to bear weight on it for two months.

Family and past history were irrelevant.

Physical examination was essentially normal except for a large necrotic ulcer extending deeply into the right heel. This ulcer exuded a very foul brownish black fluid.

Operation was done July 19, 1937 and a section of the ulcerating tissue was studied. The diagnosis was squamous cell epithelioma Grade II.

An enlarged femoral gland was removed on

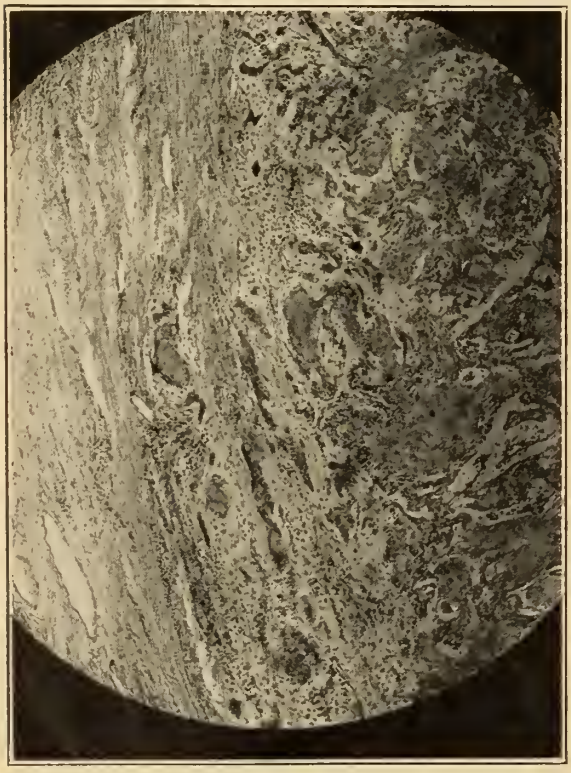


Figure 4



Figure 5

Case No. 103424. Figure 4 is section of foot shown in Figure 5. Invading irregular epithelial growth entering deep compact layers. Epidermoid carcinoma Grade I.

August 2, 1937, and revealed metastatic epidermoid carcinoma. An x-ray of the chest on August 21, 1937 showed no evidence of metastasis. The patient was discharged on August 28th in good condition. X-ray therapy to the right inguinal region was ordered. Figures 6 and 7.



Figure 6



Figure 7

Case No. 115904. Figure 7 is a section of an inguinal lymph node showing metastatic squamous cell carcinoma.

*Case* No. 113323. J. W., a 63 year old colored male miner was readmitted to the surgical service, Hillman Hospital, October 12, 1937. He complained of a chronic ulcer of the left foot for which amputation had been advised in March, 1937. He stated that in a mine accident fifteen years before the left foot was injured. At the same time the right foot was injured so badly that amputation was necessary in the middle portion of the leg. The injury to the left foot resulted in an ulcer which gradually spread until it involved a large part of the foot.

Nothing of significance was noted in past or family history.

Examination of the patient revealed the right leg to have been amputated in the mid portion. A large fungating ulcer with rolled borders was present over a good portion of the medial and plantar surfaces of the left foot. Enlarged lymph nodes were noted in the left inguinal region.

On October 14, 1937, an inguinal lymph node was removed. On section this revealed a chronic lymphadenitis. On October 24 an x-ray of the chest revealed no evidence of metastasis. Amputation in the middle third of the leg was done November 3, 1937 and healing of the stump was rapid.

Diagnosis on the tissue removed from the margin of the ulcer was squamous cell carcinoma Grade I.

The patient was discharged to the outpatient department on November 23, 1937. Figures 8 and 9.

## DISCUSSION

Definite causal relation of the chronic varicose ulcer to the development of epitheliomata has not been established. There seems, however, to be conclusive evidence that skin irritation from certain chemicals, tar, mineral oil, etc., [19, 20, 21, 22] both in human beings and in mice, has produced neo-

19. Burrows, M. T.; et al.: Cancer, Vitamin Imbalance and Roentgen-Ray Activity, J. A. M. A. 87:86 (July 10) 1926.

20. Montgomery, H.: Arsenic as Etiologic Agent in Certain Types of Epithelioma; Differential Diagnosis from, and Further Studies Regarding, Superficial Epitheliomatosis and Bowen's Disease, Arch. Dermat. & Syph. 32:218 (Aug.) 1935.

21. Shambaugh, P.: Tar Cancer of Lip in Fishermen, J. A. M. A. 104:2326 (June 29) 1935.

22. Orr, J. W.: Comparative Rate of Tumor Induction by Tar in Mouse at Different Sites in Skin, J. Path. & Bact. 41:51 (July) 1935.

plastic disease of the skin. Burrows[23] has shown a relation to exist between dental



Figure 8

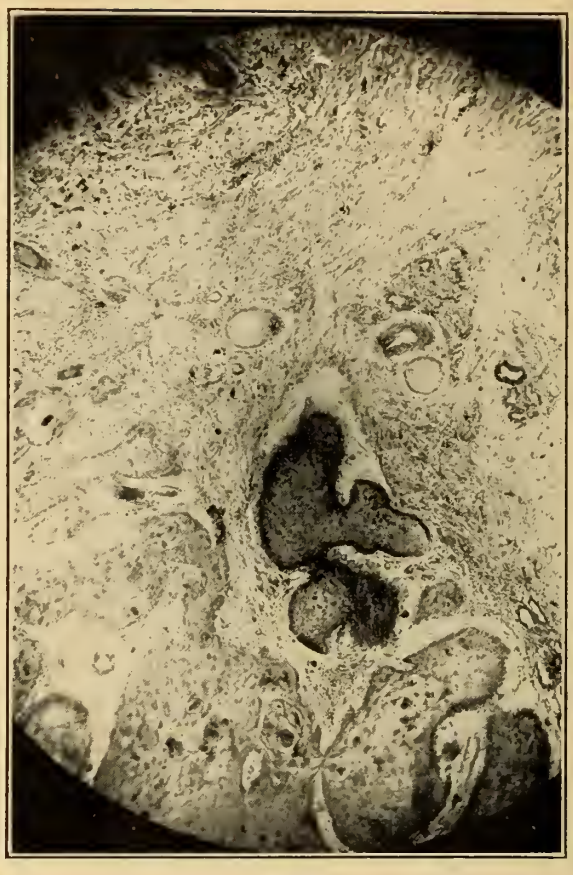


Figure 9

Case No. 113323. Figure 9 shows squamous cell epithelium infiltrating to the level of the coil glands which classifies it as carcinoma, according to White and Weidman.

infection and certain hyperplasia of the skin on which he has had pathological diagnoses of cancer. He and associates[19] have shown that changing of the environment of an embryonic heart in culture will produce sarcoma-like growth. Thus under conditions of crowding and stagnation rapid growth occurs. This growth may be checked and complete differentiation encouraged by separating the cells, or by washing them with salt solution or serum. When one end of the less crowded cell is in contact with a stagnant mass of cells, or is bathed with fluid from such masses and the other end is free from these conditions, the muscle cells contract rhythmically. This latter phenomenon is known as polarization and all types of cell functions depend on this polarity preservation. Burrows et al[19] suggest that coal tar-induced cancers are the result of crowding of epithelium about the tar drop peripheries, and the consequent removal of the epithelium from its normal environment and blood supply. It may be that in chronic ulceration epithelium is trapped and crowded by scar tissues away from normal blood supply and environment. The dead epithelial cells stimulate the living cells until growth is uncontrolled. Orr[22] has shown that fibrosis and vasoconstriction favor more rapid development of the tar, and 1:2:5:6 dibenzanthracene cancers.

The work of White and Weidman[12] of course may cast doubt on some of the previously reported cases of cancer supervention on chronic varicose ulcers. Tenopyr and Silvermann[16] tend to doubt any causal relation of the varicose ulcer to cancerous ulcers on the leg. They argue that the low incidence of cancer in varicose ulcers offers too little positive evidence. They also state that the chronicity of lesions diagnosed cancer should not lead one to assume that the lesion had been an ulcer which

23. Burrows, M. T.: Relation of Cancers of Skin and Skin Appendages to Focal Lesions in Other Ectodermal Structures, South M. J. 25:125 (Feb.) 1932.

later became malignant. Further they cite Sutton[24] who stated basal cell carcinoma may be present as long as 30 years. Broders[13] states the average duration of epithelioma in general is 7 years, ranging from 3 months to 45 years.

The first case in this series developed on an ulcer of 20 years duration, which had begun from a pimple on the heel. A similar lesion was present on the other heel, and it disappeared on treatment. All sorts of patent medicines, which probably only served to irritate the regenerating epithelium, had been used. The second case developed from an ulcer which followed a dog bite on the dorsum of the hand. This occurred 8 years before admission, and malignant change apparently occurred 2 years before admission. The third case was an ulcer which followed trauma 10 years before entry. It had entirely healed 5 years before, and recurred. A biopsy done 20 months before operation showed only cornified epithelium. The fourth case developed in an ulcer which had been present for seventeen years. It followed a crushing injury to the foot. The fifth case developed in an ulcer of the foot of fifteen years duration which also followed a crushing injury. It is believed that all five of these cases were definite ulcers in which definite squamous cell epitheliomata supervened.

SUMMARY

1. A brief resume of the literature pertaining to cancerous supervention in chronic ulcers is given.

2. Five illustrative cases are reported.

Note: We are indebted to Drs. J. M. Mason and D. S. Moore for permission to study and report these cases, and to Dr. George S. Graham for helpful suggestions and collaboration in making the photographs. We wish also to thank Dr. J. M. Donald, who operated on cases No. 100757 and No. 115904, for his permission to include these cases; and Dr. H. Ralph Smith, who operated on case No. 103527, for his permission to include this case.

"The first aid given for vascular accidents of the extremities, such as arterial hemorrhage, embolism and thrombosis and venous hemorrhage and thrombosis, will often determine the future course and the recovery or disability of the affected limb."—*de Takats.*

24. Sutton, R. L., Jr.: Rodent Ulcer, J. Missouri M. A. 27:103 (March) 1930.

# OCCUPATIONAL DISEASES*

## A PROGRAM FOR THEIR CONTROL IN ALABAMA

By
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Since industrial hygiene is concerned with the health and welfare of a large proportion of the adult population, and more especially with that portion which produces and earns, it is at once apparent that this is a very important phase of the public health.

According to the United States Census for 1930 there were approximately 1,026,000 gainful workers in the State of Alabama, and of this number more than 220,000 were engaged in the mechanical, manufacturing and mineral industries.

While most of these workers are more or less exposed to health hazards common to any other sphere of activity, there can be no doubt that many are exposed to hazards peculiar to their particular occupation. The point need not be labored that the steady operation of these hazards exerts a deleterious influence on the health of the individual, while many of them seriously endanger life or curtail the period of productive activity. That these conditions operate to the serious detriment of industry itself is shown by the high labor turnover, in certain instances, the premature loss of experienced workmen, lowered efficiency of its workers, increased time off due to illness, high insurance rates and compensation suits.

It was with the view of dealing with these problems in a scientific manner that the Division of Industrial Hygiene was created in the State Department of Health.

Before discussing with you the manner in which the Health Department and the medical profession may best cooperate in coping with this problem, I would first like to mention a few of the historical highlights in regard to occupational diseases and something of the factors which influence the incidence of industrial poisoning.

While Hippocrates correctly described a case of lead poisoning and Pliny spoke of the noxious influence of lead, mercury, and

*From the State Department of Health.

Read before the Talladega County Medical Society, February 1; and the Birmingham Clinical Club, February 22, 1938.

sulphur on those who handled these metals, one of the first publications devoted to a discussion of occupational diseases was that of Ulrich Ellenbog, a German physician, in Augsburg, in 1473. This was a small pamphlet, "On The Poisonous Wicked Fumes and Smokes." Ellenbog, who apparently had some goldsmiths among his patients, noticed that some of their troubles were probably the result of the conditions under which they worked. He described the dangers of fumes that developed from coal, nitric acid, lead, mercury and other metals and advised the goldsmiths to work in the open air whenever possible, and to cover their mouths with loose bladder skins when the fumes developed.

About this time Paracelsus wrote his important monograph on the diseases of miners, and in 1556 Agricola published his work on the metals. A quotation from Book VI of this series will serve to illustrate the type of literature which was characteristic of the times: "It remains for me to speak of the ailments and accidents of miners, and of the methods by which they can guard against these, for we should always devote more care to maintaining our health, that we may freely perform our bodily functions, than to making profits. Of the illnesses, some affect the joints, some the eyes, and finally some are fatal to men." He then goes on describing the various hazards that threatened the miners, such as the cold and dampness, the dust that "has corrosive qualities and eats away the lungs, and implants consumption in the body; hence in the mines of the Carpathian Mountains women are found who have married seven hunsbands all of whom this terrible consumption has carried off by a premature death."

During the 17th century one finds scattered references on occupational diseases, but little of lasting value was contributed until the year 1700 when the Italian physician, Bernardino Ramazzini, published his famous book on, "The Diseases of Tradesmen." This is truly one of the great medical classics.

Ramazzini was a distinguished physician of Modena who became interested in occupational diseases by watching the tradesmen and artisans in the course of his daily practice. When he had decided to make a study of disease peculiar to the various occupations he went into the workshops, talked to the people and studied the conditions under which they worked. He described various trades and their hazards, the methods to prevent these diseases, and their treatment when they occurred.

Ramazzini's work not only gave new meaning and added importance to the relation of man's work to his health, but emphasized to the physicians of his time (and this is even more true today) the importance of asking the patient, "What trade he is of?"

During the 19th century the industrial revolution in Europe not only introduced new occupational hazards but brought together many of the older ones, as the various tradesmen were attracted to the large industrial centers where they worked and lived in crowded, wretched surroundings. In addition, the application of machinery resulted in the exploitation of women and children. It was the latter abuses that led to the enactment of protective legislation, and initiated a series of legislative acts which have steadily increased in number and scope down to the present day—all designed to protect the welfare, health and happiness of the working people. A great deal has been accomplished in improving the working environment but there can be no doubt that a great deal remains to be done.

While the United States is still far behind many of the European countries in the study and control of occupational diseases we have made great strides in this direction since the World War. Further encouragement is seen by the increasing interest in this problem by various governmental agencies, notably the United States Public Health Service, and our leading universities, many of which have established chairs in this field. But what is probably most important of all is the fact that our more progressive industrial leaders are realizing more and more that, aside from its humanitarian features, it is good business to provide a safe, congenial working environment for their employees.

I would now like to mention, briefly, the factors which influence the incidence of industrial poisoning.

In the first place industrial poisoning is typically chronic. The acute forms are relatively rare and these usually the result

of an accident, such as the sudden drenching of a man's clothing with benzene. In this instance the man may die of acute benzene poisoning but if he survives this heavy dosage he will likely make a complete recovery. On the other hand, chronic benzene poisoning, the result of breathing small amounts of benzene day after day, is not so spectacular but is usually more severe. It results in severe damage to the blood-forming organs with resulting aplastic anemia and purpura hemorrhagica, and from these effects he may never recover.

This tendency toward chronicity is characteristic of a large percentage of the cases of industrial poisoning and thus often escape attention as the source of mischief. The diagnosis of these conditions is furthermore rendered difficult by the fact that the worker is frequently exposed to more than one poison. For example, painters breathe not only lead but fumes of benzene, wood alcohol, amyl acetate and other volatile solvents.

In addition to the bizzare pattern a case of industrial poisoning may assume, some of the following factors are quite important in influencing the incidence and severity of these cases: (1) Heat and humidity —Heat not only accelerates the action of all chemicals but industrial poisons as well, and due to changes in the condition of the skin they are more readily absorbed. (2) Long hours of work—Aside from the effects fatigue may have in lowering the resistance of the individual to various poisons, it is safe to say that long hours increase the incidence of industrial poisoning for the simple reason that they increase the dose of poison and also lessen the chance of eliminating one dose before another is taken. As an instance, Hamilton reports that observations made on TNT workers during the World War showed that when there was not enough time between the shifts of work for a man to eliminate the TNT he had absorbed, the amount would accumulate, and on Friday larger quantities would appear in the urine than on Monday. (3) Race is felt to be an important factor, in that experienced employers of labor believe that there is a difference between white and colored men in regard to their susceptibility to certain industrial poisons. For example, the Negro is known to be more resistant to those poisons which affect the skin and to those which are absorbed through the skin. On the other hand the Negro is considered to be much more susceptible to lead poisoning than the white man.

In regard to age and sex there is still considerable controversy concerning their relative importance. However, it is generally felt that, by and large, women are more susceptible to many of the various poisons and therefore break down sooner than do the men. Older people are likewise thought to have some advantage over youth in their resistance to many of these noxious agents. This is notably true in regard to lead, dinitrobenzene, benzene and many other volatile solvents. In many European countries laws have been enacted which prohibit the employment of youths and women in certain trades and industries.

Other factors, such as malnutrition, abuses of alcohol and individual susceptibility, all play their role in influencing the incidence and severity of industrial poisoning but their importance must be weighed in individual cases.

Now that we have discussed the subject of occupational diseases in a general way, how may we best proceed in order to reduce their incidence in Alabama?

In the first place we must find out how many cases there really are, where they are, and where they may potentially occur.

To answer the first two questions it is absolutely essential that we have the full cooperation of you, the medical profession. By this I mean, in large part, the reporting of occupational diseases to the State Department of Health. No doubt you are aware that occupational diseases are reportable in this state, just as typhoid fever or smallpox, and it is equally important that they be reported if the Health Department is to successfully carry on this work. Without these reports we shall be very much like the good general who jumped on his horse and galloped away in all directions at the same time.

You may use the regular reporting card for these cases, and you may rest assured that any investigations which may follow the reporting of an occupational disease will be done not only with your knowledge beforehand but in such way as not to jeopardize any position you may have with industrial organizations. That is to say, the

spirit of our purpose is not that of a law enforcing agency but rather one of rendering a service to employer and employee alike. It has been my experience that, once an employer learns the real purpose of this program, he has become, without exception, an enthusiastic supporter, and welcomes any effort which may help him to keep his employees in good health.

Another source of information which we have at our disposal for determining the incidence and location of occupational diseases is the sick benefit association to which many employees belong. This agency, together with the medical profession, thus gives us our only lead as to where cases are actually occurring.

To answer the third question, that is, where may cases of industrial poisoning potentially occur, we are now conducting a preliminary survey of a certain percentage of all types of manufacturing, mechanical and mineral industries. The purpose of this survey is to determine the exact nature and scope of our problem throughout the state. In doing this survey a large body of fundamental information will be accumulated; for example, the number of people, male and female, engaged in specific occupations, the exact nature of their jobs, the raw materials and by-products they come in contact with (noting especially the possibility of noxious gases, vapors and fumes, dangerous dusts, etc.) and the control measures employed for their protection.

When this survey is completed and we have determined the plants in which potentially hazardous conditions are thought to exist, we will then ask permission of the management to make actual measurements of any noxious gases, vapors, fumes or dusts which are suspected of being present in the workroom air. If we find, for example, that more than the threshold limit of silica-bearing dust is found in the workroom of a foundry, the owner will be so advised, and methods for controlling it will be given him. (This type of work will of course be done by a trained industrial hygiene engineer.)

It is desirable, too, that these findings be correlated with the health and physical findings of the employees in a given plant, these to be determined by clinical studies of the workers. Naturally, any information so acquired will be held in strictest confidence by the examining physician and the Health Department, and any physicial defects uncovered will be referred to the family physician for treatment.

Thus it is felt that the difficulties and delicate situations, which of necessity arise in the course of work of this sort, may be largely eliminated if we direct our efforts along the lines which I have tried to indicate. By so doing, the full confidence and cooperation of the medical profession, industry and labor will result, and when this is accomplished the control of occupational diseases in this state should become a much simpler task.

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## PAPILLOMA OF THE URETHRA IN AN INFANT

By
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And
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Papillomatous tumors of the posterior urethra and bladder neck are not especially rare in adults, the Bladder Tumor Registry having on record over one thousand cases. The youngest patient in the same record is, however, seventeen years of age. The case reported here is unusual because it occurred in an infant, in an unusual location, and because the tumor was of considerable size.

The patient, a white male infant born on February 7, 1930, of normal parents with a family history entirely negative for any degenerative diseases, showed signs of difficult urination at three months of age. He would strain intensely at each voiding and cry at the termination of each micturition. Aside from this difficulty he developed normally, sat up at five months, crawled at nine months, and cut his first tooth at seven and a half months. At eleven months of age he developed fever and chills, vomited everything he ate. The straining at voiding became more intense, and he had a loose stool at each micturition. He was admitted to the Children's Hospital, Birmingham, Alabama, on February 2, 1931, at the age of one year. The physical findings were entirely negative except for marked malnutrition. The urinalysis showed 4 to 6 pus cells per high power field, and the white count in the blood was 23,550

cells, of which 60% were polymorphonuclear neutrophiles. X-ray studies of the gastro-intestinal tract were negative. The difficulty of urination was ascribed to the acid urine, and, indeed, the baby improved markedly upon alkalinization of the urine. After four days the urine was negative for pus cells, and the patient had gained weight, and was therefore discharged, as improved.

The patient was readmitted on February 12, 1934, at the age of four years with an interval history of pertussis in 1933. Since his discharge in 1931 he was habitually incontinent, had progressively lost weight, became more anemic, and he had repeated attacks of hematuria. The order of having the infant brought back to the clinic was ignored by the parents. Physical findings now showed a markedly under developed and under nourished boy with evidence of "renal rickets." There was a palpable tumor mass in the lower abdomen, dull to percussion and later proved to be a distended bladder. There was marked tenderness over both kidney regions. Admission temperature was 104 degrees and continued septic for five days, ranging between 97 and 104.8. Urinalysis showed plus four pus, plus one albumen, red blood cells and amorphous crystals. The blood showed 26,900 white blood cells with 75% neutrophiles. Provisional diagnosis of pyelitis and congenital urethral valve formation was made. A small caliber urethral catheter was passed to the bladder without obstruction, and the bladder was gradually decompressed, after which the catheter was left inlying. General supportive measures were prescribed, the child responding dramatically to all treatment with a decline of temperature to normal, marked improvement in appearance, color and nutrition. The first phenolsulphonphthalein test, intramuscular, showed recovery of 21% of the dye in one and a half hours, while a second test ten days later showed 50% of the dye recovered in one and one half hours. A flat plate of the spine showed no spina bifida. The condition of the child still was such that further instrumentation was not warranted, and he was allowed for several more weeks to recuperate, meanwhile wearing the indwelling catheter. Then a cysto-urethrogram was made, showing a marked filling defect of the bladder neck and a marked narrowing of the prostatic urethra. Cystoscopy on March 27, 1934 showed a large papillomatous mass filling the trigonal area of the bladder, the tumor arising from a pedicle that disappeared into the prostatic urethra. The dye excretion and blood chemistry tests now being good, a suprapubic cystotomy was performed and a large tumor mass removed from the prostatic urethra, the pedicle being rooted to the floor of the urethra just anterior to the verumontanum. The child recovered uneventfully, the suprapubic wound closed readily, the inlying catheter was removed, and the patient left the hospital completely cured.

The tumor mass weighed 5.2 grams, a papillomatous mass arising from a pedicle 0.9 centimeters in diameter and tapering after a length of one centimeter to a diameter of 0.4 centimeters (Fig. 1.) The

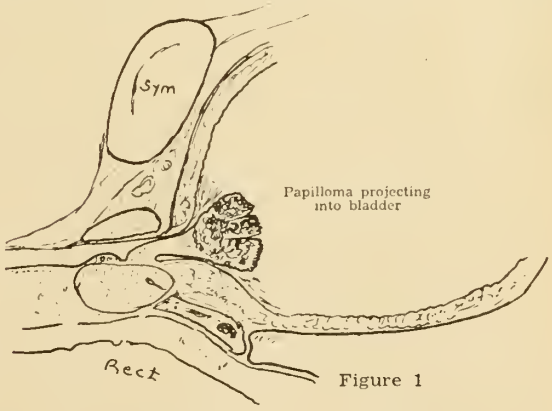


Figure 1

tumor branched out into a mulberry shaped growth from the pedicle, the greatest diameter being 5 cm. The mass could be separated into smaller branches, some being as large as 2 centimeters in diameter. Microscopically the sections showed the tumor to be composed of fibrous tissue and fat, there being a few muscle fibers in the stroma. The surface epithelium was of the transitional type, showing no evidence of malignancy but considerable subepithelial infiltration of lymphocytes, and some areas of ulcer formation and interstitial hemorrhage. There were several deep septa with evidence of gland formation supported in the thick stroma, the gland ostia opening in the sulci. The microscopic diagnosis was papilloma of the urethra.

The follow-up of the child showed a normal development, recovery of a healthy appearance, good phenolsulphonphthalein output, and normal ability to void without incontinence or dysuria.

# SYPHILIS*

## SOME OBSERVATIONS AND CONCLUSIONS DRAWN FROM THE ADMINISTRATION OF 120,600 ANTI-SYPHILITIC TREATMENTS TO 4,560 PATIENTS

By
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### TREATMENT

Before the treatment of syphilis is begun a positive diagnosis must have been made, or all available laboratory aids exhausted. Under no conditions should antisyphilitic treatment be administered simply because the lesions resemble syphilis. Lesions of the external genitalia often heal without treatment. If antisyphilitic treatment is administered to such a patient during this period, then the physician is prone to believe that the lesion healed because of the treatment and that the patient has syphilis. In early syphilis, if treatment is begun without a positive diagnosis having been made, then the patient must continue with the treatment as if a positive diagnosis has been made. The therapeutic test should never be employed in early syphilis, but may be used in latent syphilis. If the lesion resembles syphilis, repeated darkfield examinations should be followed by blood Wassermanns over a period of five months before the patient is discharged, and informed that he does not have the disease. Not only the patient, but all sexual contacts should be located and examined. Only by the early examination and treatment of the patient, and all sexual contacts, can the prevalence of syphilis be decreased.

Not only must the diagnosis be made, but the stage of the infection determined before satisfactory treatment can be administered. For efficient treatment, syphilis is divided into early syphilis, latent syphilis, syphilis complicating pregnancy, congenital syphilis, cardiovascular syphilis, and syphilis of the central nervous system. A complete physical examination with urinalysis and blood counts should precede treatment. In early syphilis, the syphilitic infection is treated because the majority of the patients are young and in good physical condition. In latent syphilis it is usually necessary to treat the individual and symptoms and not the syphilitic infection. Here the treatment must be adapted to the patient's ability to tolerate it.

Under ideal conditions, in seronegative primary syphilis, a cure may be expected in approximately 100 per cent of the cases; in seropositive primary syphilis, 90 per cent; and in secondary early syphilis, 85 per cent.

CHART 4*
(From Moore)

AN ESTIMATE OF THE PROBABLE OUTCOME IN EARLY SYPHILIS UNTREATED, INADEQUATELY TREATED AND WELL TREATED

| Type of Syphilis | | Probable Outcome Expressed In Approximate Per Cent, If— | | |
|---|---|---|---|---|
| Original Diagnosis | Ultimate Outcome | Untreated | Inadequately Treated | Thoroughly Treated |
| Early syphilis | Serious late syphilis | 25 | 35-40 | 5-10 |
| | Benign late syphilis | 15 | 15 | 5 |
| | Latent syphilis | 30 | 30 | 5 |
| | "Cure" | 30 | 15-20 | 80-85 |

*Charts 1, 2 and 3 appeared in preceding installments.

Under average conditions of treatment, where patients for different reasons fail to cooperate, a cure will be obtained in about 71 per cent of primary seronegative syphilis, 53 per cent of primary seropositive syphilis, and about 49 per cent of early secondary syphilis.

CHART 5
(From Moore)

THE RESULTS OF TREATMENT IN VARIOUS STAGES OF EARLY SYPHILIS

(With Relation To Amount And Type Of Treatment Administered)

| Stage Of Syphilis | Total Cases Treated | Per Cent With Satisfactory Clinical Outcome* | The Incidence Of Observed Reinfection In The Total Series (3,244 Patients) |
|---|---|---|---|
| Seronegative 1 | 140 | 71.4 | 1.8 |
| Seropositive 1 | 274 | 53.3 | 1.5 |
| Early 11 | 912 | 49.8 | 8.8 |

*That is, reinfection, or clinical and serologic negativity for one year or longer after treatment.

*From the Department of Syphilis, Hillman Hospital, Birmingham.

Read before the Morgan County Medical Society, Decatur, February 4, 1937.

The last of three installments. The first and second appeared in the February and March numbers, respectively.

In the treatment of early syphilis, arsphenamine, neoarsphenamine and mapharsen are the arsenicals of choice in the order of efficiency. As previously stated, bismuth is employed instead of mercury. Continuous treatment is the only form of therapy that gives satisfactory results in early syphilis. Under no conditions should rest periods be permitted.

CHART 6
(From Moore)

THE OUTCOME IN VARIOUS TYPES OF EARLY SYPHILIS AS COMPARED WITH THE CHARACTER OF TREATMENT, IN PATIENTS FOR 2 OR MORE YEARS

(Data Of Cooperative Clinical Group)

| Type Of Treatment | Total Cases Treated | Satisfactory Clinical Results Obtained, Per Cent |
|---|---|---|
| Continuous | 172 | 79.7 |
| Intermittent | 595 | 65.0 |
| Irregular | 546 | 33.3 |
| Intensive | 47 | 23.4 |
| Total | 1360 | 52.7 |

CHART 7
(From Moore)

RATE OF REVERSAL OF BLOOD WASSERMANN IN EARLY SYPHILIS UNDER DIFFERENT SCHEMES OF TREATMENT

(Data Of The Cooperative Clinical Group)

| Wassermann Reversed In | Percentage Of Patients In Whom Wassermann Was Reversed Under Stated Treatment Schemes | | |
|---|---|---|---|
| | Continuous | Intermittent | Irregular |
| 3 months or less | 52.6 | 3.8 | ..... |
| 4-12 months | 29.2 | 33.5 | 4.7 |
| 13-30 months | 3.4 | 15.8 | 19.0 |
| 30 or more months | 1.5 | 4.0 | 24.0 |
| Total reversals | 86.7 | 57.1 | 47.7 |

CHART 8
(From Moore)

WASSERMANN FASTNESS UNDER VARIOUS TREATMENT SCHEMES IN EARLY SYPHILIS

(Data Of The Cooperative Clinical Group)

| Treatment Scheme | Total Patients Treated | Per Cent Wassermann Fast |
|---|---|---|
| Continuous | 1423 | 11.2 |
| Intermittent | 1103 | 37.3 |
| Irregular | 363 | 68.3 |

These charts graphically show the importance of early continuous treatment. The following plan is followed in the treatment of early syphilis: 0.3 gram neoarsphenamine or 0.03 gram mapharsen is given on the first and second days of treatment. On the third day the patient receives 0.2 gram of bismuth salicylate. The patient then receives 0.6 gram of neoarsphenamine or 0.06 gram mapharsen and 0.2 grams of bismuth weekly, spaced two or three days apart, for ten weeks. After this, he receives 0.2 gram of bismuth salicylate weekly for ten weeks. This is followed with neoarsphenamine 0.6 gram or mapharsen 0.06 gram at weekly intervals for ten weeks. Potassium iodide is given during the bismuth course. This plan of treatment is continued until the patient has completed eighteen months of continuous treatment. The treatment should be so arranged that the patient completes his treatment with bismuth. Bismuth seems to be able to increase the patient's resistance against the infection. If the patient is a female, usually 0.04 gram of mapharsen may be employed instead of 0.06 gram. Blood Wassermanns are taken after the completion of each course. A spinal puncture is done at the end of the first nine months of treatment, when the treatment is completed, and one year following completion of treatment. The patient reports every three months for the first year for a blood Wassermann. Following this, he reports for a complete physical examination and blood Wassermann yearly for the rest of his life.

Latent syphilis is treated in a similar manner, except that it is unnecessary to give bismuth and the arsenicals together during the first ten weeks of treatment; and the treatment is continued for twenty-four instead of eighteen months. The amount of arsenic may be decreased and the bismuth increased. These patients return once a year for 3 to 5 years for a course of bismuth. A spinal puncture is done before treatment is started, and as outlined for early syphilis. Cardiovascular syphilis and central nervous system syphilis are ruled out before treatment is begun.

The treatment of syphilis complicating pregnancy is carried cut as above outlined depending upon whether the patient has early or latent syphilis. Here we have one of the greatest fields of preventive medicine. A living uninfected baby may be expected in 95 per cent or better of cases provided treatment is given throughout the pregnancy. Without treatment a syphilitic mother has a 16 per cent chance in comparison to a 76 per cent chance of a non-syph-

ilitic mother of bearing a normal, living baby.

CHART 9
(From Moore)

OUTCOME OF PREGNANCY WITH AND WITHOUT ANTISYPHILITIC TREATMENT. NO TREATMENT PRIOR TO PREGNANCY

| Treatment | Number of Pregnancies | Condition Of Child At Birth | | Ultimate State Of Child | |
|---|---|---|---|---|---|
| | | Per Cent | | | |
| | | Living | Dead | Normal | Syphilitic |
| None | 268 | 54.1 | 45.9 | 35.4 | 64.5 |
| Adequate Treatment | 78 | 96.1 | 3.9 | 93.4 | 6.5 |

CHART 10
(From Moore)

THE OUTCOME OF PREGNANCIES IN WOMEN WITH LATENT SYPHILIS, BEFORE AND AFTER TREATMENT

(Material Of The Cooperative Group)

| | Pregnancies | Children Born Alive, Healthy, Per Cent |
|---|---|---|
| Pregnancies before treatment | 1467 | 16.9 |
| Pregnancies during or after treatment | 230 | 65.2 |

If treatment is delayed until the fifth month of pregnancy, excellent results can be expected. In the later months of pregnancy without previous treatment, the treatment should consist of bismuth and the arsenicals, as during the first ten weeks of early syphilis. Even three or four weeks of treatment may prevent a premature delivery or a dead baby, but a syphilitic child is to be expected. The last few weeks of treatment before delivery should consist of or include the arsenicals. For some unknown reason the pregnant woman tolerates treatment better than her non-pregnant sister. A woman that has had syphilis should receive treatment during each pregnancy, even if she has supposedly been cured. This may be an unnecessary precaution, but I feel that it should be exercised. The treatment during pregnancy is to prevent the birth of a syphilitic child and not the cure of the mother's syphilis. Treatment for cure of her infection is begun at once following the delivery.

The treatment of congenital syphilis will not be discussed as my experience in this type of the disease has been limited. Congenital syphilis is as preventable as smallpox. If a blood Wassermann were a routine in the first few weeks of every pregnancy, and antiluetic treatment administered to all cases with a positive Wassermann, congenital syphilis would become a rarity.

The treatment of cardiovascular syphilis must be undertaken cautiously. The treatment of the cardiovascular system is as important as the treatment of the syphilitic infection. These patients should receive a course of bismuth and potassium iodide before being given any of the arsenicals. If their cardiac involvement is marked and they are advanced in years, the treatment should be confined to bismuth, bismarsen and potassium iodide. Many of these patients will tolerate mapharsen and neoarsphenamine following a course of bismuth if it is started cautiously in very small doses and gradually increased. In this type of case a cure is not to be expected, but the progress of the disease may be arrested and many years of comfort added to their lives. The duration of the treatment will depend upon the age and physical condition of the patient.

The treatment of syphilis of the central nervous system is very complicated and each case becomes a law unto itself. In these cases a cure is not to be expected, but the disease may be arrested and the patient greatly improved. Here the main attack is tryparsamide, bismuth, and potassium iodide and malarial therapy. Tryparsamide should never be administered until the eye grounds have been carefully examined to determine if the optic nerves have been damaged by the infection. During the first course of tryparsamide, the patient should be closely observed for evidence of damage to the optic nerve. Here, as in cardiovascular syphilis, the treatment must be adjusted to the patient's ability to tolerate it.

In non-symptomatic neurosyphilis, treatment consists of long courses (12-15 doses) of one of the arsenicals, and bismuth and potassium iodide. Following six months of this type of therapy, if the spinal fluid does not show improvement, treatment is changed to tryparsamide and bismuth. If six months of tryparsamide and bismuth therapy fails to show an improved spinal fluid, then malaria therapy should be given a trial, provided the patient's physical condition warrants its use. In paresis, ma-

larial therapy should be given as soon as a positive diagnosis has been made. Here the outlook is very poor and a few weeks delay may result in a marked advance in the disease. Tryparsamide and bismuth should follow the malarial therapy. Potassium iodide is given in large doses unless contraindicated. These patients usually require three years or more of treatment. The results are far from satisfactory but are worthy of the time and expense required. In the majority, if treatment is not instituted, the outlook is very dark. Malarial therapy in selective cases and employed by one skilled in its use, especially in paresis, at times gives startling results, but if indiscriminatively applied the death rate is prohibitive. In many of these patients the disease continues to advance and they eventually require institutional care. These patients should have spinal fluid studies every six months or oftener, to determine if progress is being made. The majority of them will not show a change in the blood Wassermann, but progress is gauged by clinical improvement and changes in the spinal fluid.

### CONCLUSIONS

Medical science and drugs make the eradication of syphilis possible, but it continues to increase in the United States. Progress can not be made in its control until the public is educated regarding the seriousness of the disease and the medical profession employs scientifically the means at its command to combat it. It must be considered a public health problem and not a moral issue.

Only by the diagnosis and adequate treatment of early syphilis, and the examination of all sexual contacts, can the prevalence of the disease be reduced.

No patient suspected of having early syphilis should be treated until a positive diagnosis has been made. Once the diagnosis has been made, he must be impressed with the importance of continuing treatment and the seriousness of discontinuing it.

Latent syphilis and syphilis complicating pregnancy can only be discovered by the routine use of the blood Wassermann. When this is done our institutions will no longer be crowded with those wrecked mentally and physically by the disease.

In closing, may I plead with you to talk syphilis, to diagnosis syphilis, to look upon all lesions of the external genitalia as syphilitic until proven otherwise; to routinely employ the blood Wassermann in every physical examination, and in every pregnancy regardless of the moral, social, intellectual, or financial standing of the patient. When this is done, syphilis will often be discovered where it is believed it cannot exist.

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**Sulfanilamide in Genito-Urinary Infections**—An evaluation of the results obtained with this type of medication in gonorrhea is still somewhat difficult. We feel that the benefit accruing from shortening the length of time of active symptoms and the lessened number of complications as compared with that of the past has proven the drug to be a very valuable adjunct in treatment of gonorrhea. In our hands, however, it has not replaced the more accepted methods of treatment for this disease.

As the cure of gonorrhea is based on a personally developed immunologic reaction between host and organism, and as stimulating local therapy in conjunction with proper hygienic control of the patient is a potent factor in promoting this immunity, we have been loth to dispense with these time-honored methods of treatment. For these reasons, patients are given the same therapeutic routine as formerly, and sufficient time of observation is taken before they are discharged as cured.

Briefly, our records show that ten per cent of the patients with an acute anterior gonococcal urethritis treated with sulfanilamide will apparently be radically cured within forty-eight hours. By a radical cure we mean that continuous observation of these individuals over a period of weeks combined with repeated "tests of cure" produced no evidence of the disease. Seventy-five per cent of patients will be improved by administration of the drug as shown by diminution in the amount of urethral discharge, with recovery completed at the end of four to six weeks. Fifteen per cent of patients seem to obtain no therapeutic results whatever with the medication. They continue to have signs and symptoms of infection for long periods of time, with or without complications in the form of acute and chronic prostatitis. However, serious complications have been markedly reduced and those that do occur may be explained as due to a lack of normal resistance to the disease or on a basis of poor behavior. The acute symptoms of posterior urethritis are rapidly relieved by the drug. The benefit from sulfanilamide in acute epididymitis has been less spectacular. It apparently does not materially shorten the course or intensity of this complication. In our experience, acute iridocyclitis and arthritis have also been disappointing in response to this treatment.—*Clark and Branham, South. M. J., April* 1938.

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue ..... Montgomery, Ala.

Subscription Price ..... $3.00 Per Year

April 1938

## LATE RESULTS IN THE CONSERVATIVE TREATMENT OF NEPHROLITHIASIS

"Operation is usually advised and performed if a patient is found to have a renal calculus. For various reasons, however, certain persons who have nephrolithiasis are not treated surgically at the time when this diagnosis is first established. The minute nature of the calculus, the complete absence of symptoms, the presence of serious disease elsewhere in the body, advanced pathologic changes in the urinary tract, and other reasons may apparently render operation unnecessary or undesirable. Some patients who are not operated on progress quite satisfactorily under medical management and no serious symptoms referable to the urinary tract develop. Unfortunately, this is not generally true, as in the majority of cases symptoms of varying severity occur sooner or later and may render subsequent operation imperative or even jeopardize the patient's life."

"It therefore seemed worth while to determine, if possible, the factors which influence the clinical course of a patient with nephrolithiasis if early operation is not performed. For this reason a follow-up study was made of 177 patients who had nephrolithiasis but were not operated on at the time when the stones were first discovered." This is the introduction to the study made by Priestley and Braasch[1] of this subject. The Rochester investigators followed their patients for an average of eleven years after the first diagnosis of kidney stones was made.

Their figures show that 81.8 per cent of all unilateral and 97.8 per cent of all bilateral stones that were not removed surgically caused symptoms referable to the urinary tract, that silent stones caused subsequent trouble in 66 2/3 per cent of cases as against 96.6 per cent for stones which had previously caused pain, that large stones caused subsequent symptoms and necessitated later operation more frequently than small stones, that stones in a calix led to subsequent trouble less often than stones in the pelvis, that if a kidney contained a stone and was normal pyelographically it caused serious symptoms less often than a kidney which was definitely abnormal pyelographically, that impairment of renal function or the presence of gross infection in association with stone definitely increases the incidence of later symptoms referable to the kidney.

The authors assert that "it is difficult to be dogmatic about the size of a calculus that one might expect to pass spontaneously, as this depends on the contour of the stone, the diameter of the ureteropelvic juncture, the size and distensibility of the ureter and other factors. In general, any stone larger than 1 cm. in diameter will not pass spontaneously in many cases." They also hold that "in general, it is evident that surgical treatment should be advised for primary calculi unless they are so minute that they may pass spontaneously." And they warn us that "obviously, if operation is to be performed, the optimal time is prior to the development of renal insufficiency."

The researches of Priestley and Braasch are illuminating and rather depressing to the average practitioner—illuminating because they are accurately and scientifically carried out, and depressing because, to physicians who do not suffer from furor operandi, they advance cogent reasons for yet more surgery. The average doctor can follow a few of his patients with renal calculi for a long time and many for short inter-

1. Priestley, James T., and Braasch, William F.: Late Results in the Conservative Management of Nephrolithiasis, J. A. M. A. 109: 1703 (Nov. 20) 1937.

vals only, but not many are in a position to keep in touch with them for more than a decade, as did the authors. The problem of how best to advise those who suffer from kidney stones has long been a serious one for the conscientious practitioner and the Rochester clinicians are taking a step forward by substituting definite facts and figures for ideas and impressions which, in the past, have frequently been rather vague and indefinite.

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## EXPANSION OF HEALTH SERVICES

Only within the past year has it been possible, because of the limited funds available to the health department, to concentrate attention on certain major problems known to be serious health menaces and which are potent factors in the retardation of the progress of our people and of our state. It was felt that the limited funds at the command of the health department could best be applied to the holding together of the county health departments which, throughout the years, and after great effort, had been built up; and that the completion of this major objective of state-wide county organisation should receive first consideration. This has now been made possible because of three factors: (1) Federal subsidy to states; (2) Stabilisation of the state's appropriation for health work; and (3) Stabilisation of county appropriations for health work through revenues accruing from the luxury and liquor taxes. Unquestionably, the completion of the task of setting up in each county—even though minimal—the functioning machinery for local health work is an excellent beginning and one of which all may be justly proud. In a state so largely rural as Alabama, such mechanism is essential, if local communities are to derive the greatest benefits from the expenditure of the tax dollar. However, it is important that we remember the basic principle upon which all health services in Alabama have been built and are now being rendered; viz, local financial participation and local responsibility in co-operation with, and aided by, the state. The Federal Government, while aiding in a financial and advisory way, in no sense, has assumed a dictatorial or paternalistic role. This plan, and these principles, universally conceded to be sound, are full of hopeful promise to our people, if properly appreciated and observed by each of our governmental agencies, state, county and municipal. In substance, this means that each and every community, large or small, must study and acquaint itself with its own health problems, and, in co-operation with the central health department, speaking for the state, endeavour to work out a solution. It is axiomatic, that many communities and urban centres, as they grow in numbers, wisdom and affluence will become more self-sufficient and less in need of extraneous aid. However, even here there exist many health menaces, the checking of which will require the combined efforts from all available resources. That society and government alike appreciate this fact is evidenced by legislation now pending in Congress which seeks to provide aid to states in a better control of the venereal diseases. Such a move should not be construed as meaning that state and local governments are to relax their efforts or to surrender their responsibility. Rather does it signify a recognition of the enormity of this particular problem and the need for a still greater degree of co-operation if this scourge to society is actually to be curbed. This appreciation, on the part of the general public and of government, of the value and need to society of a more generous application of scientific medical knowledge is one of the characteristic trends of the present generation. To meet this need, no unit of government, no group in society, should fail to shoulder its full responsibility. Modern health programs call for adequate financing, over and above sound medical leadership and technically trained personnel; the two must go hand in hand. While it is true that every county in this state now has its own health department, the number of personnel attached to each is, in most instances, minimal and not yet adequate; one public health nurse cannot satisfactorily serve a rural population group of 20,000 or more. Local appropriating bodies must be shown this need and encouraged to provide local funds for further expansion of their own health services. In such expansion, the central health department will, of course, continue to aid financially within its limitations. However, it has become increasingly more important for the central health department to strengthen its staff of trained consultants in certain fields,

in order to be in position to render a specialistic service which the individual health units are themselves unable to provide. Illustrative of the great value of such services both to the practising physicians and to the people is the system of diagnostic laboratories operated throughout the state by the health department. The smaller individual health departments are, themselves, not in position to finance such highly technical services. As the horizon of health broadens as a consequence of the manifold discoveries in the scientific field of medicine—many of which have distinct and important public health implications—the need for making this newer knowledge more generally and readily available is steadily growing. The financial and economic aspects involved in efforts at a wider distribution of these services present difficult problems alike to the medical profession, to society and to governmental agencies. The resolve to apply this newer knowledge to a better control of certain widespread diseases heretofore not specifically catalogued as falling within the domain of official health agencies—as are now the acute contagions and the problems of environmental sanitation—stresses anew the tremendous importance of the preventive aspects of the practice of medicine. Health departments, if adequately financed, can and should, through laboratory services, clinics for the indigent and semi-indigent, with the medical profession an active participant, special consultants and the furnishing of drugs and serums, make valuable contributions to the practising physician in his individual ministrations. It is through co-operative effort of this sort that Alabama's health department is seeking to expand its services and to broaden its field of usefulness both to the medical profession and to the people.

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## THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

### IMPORTANT HEALTH LEGISLATION PENDING IN THE FEDERAL CONGRESS

By
J. N. BAKER, M. D.
State Health Officer

Several measures of considerable significance from the point of view of public health in Alabama and elsewhere are now awaiting action by the Federal Congress.

Of perhaps greatest importance to the people of this state, because of the seriousness of the venereal disease problem here, is the LaFollette-Bulwinkle bill providing for federal aid to the states for an intensified campaign against these diseases. This measure, which has the approval of both the United States Public Health Service and the Conference of State Health Officers, provides for an appropriation of $3,000,000 the first year, $6,000,000 the second year, $12,000,000 the third year, and $25,000,000 for each of the following ten years. It authorizes the Surgeon General of the United States Public Health Service to apportion these sums among the forty-eight states, Hawaii, the District of Columbia and Alaska, on the basis of population, the seriousness of the venereal disease problem in the various states, and the states' financial needs. This measure also provides for the establishment of a venereal disease division of the United States Public Health Service for the study of the causes, treatment and prevention of syphilis, gonorrhea, etc. It will also be a function of the new division, if the measure passes in its present form, to cooperate with the departments of health of the various states in the inauguration of measures for the prevention and control of these diseases.

The extent of the need for a federally financed campaign of this kind becomes obvious when we consider that approximately 36 per cent of this state's total population consists of Negroes and that the venereal diseases are particularly prevalent among the members of the race. Conservative syphilologists estimate that approximately one-fourth of all the Negroes in Alabama are infected with syphilis. On the basis of this estimate, there must be nearly 260,000 cases of this disease among the state's colored population. Its prevalence among the white people is estimated at about eight

per cent. Thus there are probably between 400,000 and 425,000 syphilitics in this state at the present time. If all of them could be concentrated in a single community, that community would constitute the largest city in the United States south of the Potomac and Ohio Rivers, with the single exception of New Orleans.

While realizing that the venereal diseases constitute a serious social and health problem, the average person is inclined to consider them relatively unimportant as a destroyer of human life. Most people express great surprise when the actual situation regarding their deadliness is impressed upon them. Few Alabamians realize that, in 1936, the latest year for which complete statistics are available, a single one of these diseases, syphilis, was directly responsible for more than five times as many deaths in their state as typhoid fever, nearly nineteen times as many as measles, nearly thirty-eight times as many as scarlet fever, and nearly one-ninth as many as heart disease, by far the chief cause of death in this state. If we include the approximately 725 other deaths for which syphilis is believed to have been indirectly responsible, we find that this disease ranked in eighth place that year among the major killers in Alabama. Last year the number of reported cases of syphilis and gonorrhea combined far exceeded that of any single disease regarding the prevalence of which the State Department of Health has any records.

Alabama is in a particularly favorable position to participate in such a campaign as is contemplated by the sponsors of the LaFollette-Bulwinkle bill. With a full-time local health department in every county, it already has the machinery for a health drive of this kind. Working in cooperation with county medical societies and other local groups, the state and county health departments have been carrying on for some time as active and vigorous a campaign as their limited finances would permit, and this campaign has been productive of gratifying results. The results to be expected from an intensified drive carried on simultaneously on 67 fronts and adequately financed with federal funds should quickly and definitely lead both to improved conditions among our people and to increased efficiency and productivity.

The Senate Committee on Commerce reported the measure favorably on February 23 after limiting the authorized appropriation to $3,000,000 for the fiscal year ending June 30, 1939, and to $6,000,000 for the fiscal year ending June 30, 1940. These, of course, are the amounts stipulated for those two years by the authors of the bill, but the committee's action makes no provision for increased appropriations in later years, or, indeed, for continuance of the federally financed campaign against the venereal diseases beyond this two-year period. Backers of the original measure and health workers generally are hopeful that the entire amount included in the measure as introduced will be provided, preferably through restoration of the bill's original provisions before its passage at the present session of Congress. If that is not possible, it is hoped that additional funds to carry out the full provisions of the bill as introduced will be voted at later sessions of Congress.

* * *

The tragic death last fall of several persons in this state and of many others in other states as a result of taking elixir sulfanilamide emphasized, as few things could, the need for a drastic revision of the federal pure food and drug laws for the more effective protection of the public.

There is now awaiting congressional action a drastically revised version of the Copeland bill, which was introduced several years ago as a means of affording such protection. Although the original measure had much to commend it, it is the all but unanimous opinion of the medical profession and of public health workers that the bill in its present form fails to make any worth-while contribution to the effort to protect the consuming public. This opinion was voiced by the Conference of State and Provincial Health Authorities of North America when, on January 19 of this year, this group adopted resolutions criticising pending food and drug legislation on the ground that, in the language of the resolutions, such legislation would "have no deterring influence" against the commission of first offenses and expressing the Conference's "vehement opposition" to what the resolutions termed "legislation designed to control false advertising but failing to provide penalties." In view of the obvious shortcomings of the Copeland bill in its

present form, health workers have expressed the opinion that this measure should be discarded entirely and a completely new bill introduced. They insist that such a measure should provide for federal jurisdiction over false advertising to prevent false and misleading statements from being made in the advertising of various products; more adequate control of food products containing ingredients either actually or potentially poisonous; authority to establish standards and definitions for all food products; the manufacture only under specific permits of foods that may prove injurious to the consumer; strict curbing of false claims regarding the curative powers of various medical preparations; truthful labeling of all foods and drugs; more severe penalties for violations of food and drug laws; and the designation of the Pure Food and Drug Administration, rather than some semi-political agency, as the official enforcement body to insure proper observance of these laws.

* * *

Measures have been introduced in Congress for the creation of a department of welfare and for the administration by this department of the laws relating to public health and sanitation. Under these bills' provisions, public health, safety and sanitation would comprise one of seven generic interests to be served by this new federal unit. Among the other six are some having little, if anything, in common with the promotion of public health. Inasmuch as the Federal Government spends more than $100,000,000 a year for this purpose, the Board of Trustees of the American Medical Association and numerous other groups have placed themselves in vigorous opposition to any measure of this kind and have urged, instead, that all public health agencies of the Federal Government be consolidated into a department of health with representation in the President's Cabinet on the same basis as the other regular departments of the Federal Government. It is felt that, in the present state of scientific medical knowledge and the nation's need for the application of this knowledge, no hampering restrictions should be placed upon the machinery designed to render so important a service as public health. In this view, the State Health Officer heartily concurs.

Two bills aimed at the control of stream pollution were introduced some time ago. One, known as the Barkley-Vinson bill, provides aid and encouragement to the individual states for the launching of water-pollution correction measures, leaving with the states themselves, however, responsibility for carrying on this work. The second of these two measures, the Lonergan-Pfeifer bill, disregards state boundaries and seeks to place this work entirely in the hands of federal agencies. Just before the regular session of Congress ended last year, Senate sponsors of these two bills agreed to withdraw them and substitute what became known as the Vinson bill. The measure now awaiting action by the national law-making body contains a Senate amendment providing for federal enforcement of water-pollution measures by injunction.

Objection to the employment of federal, rather than state, agencies for instituting and administering water-pollution measures has been expressed by the Conference of State and Provincial Health Authorities of North America and by the health authorities in many states, who strongly feel that the provisions as set forth in the original Barkley-Vinson bill should be preserved. The State Health Officer feels that, in Alabama as elsewhere, something more effective than arbitrary decrees from distant federal agencies is necessary for the proper solution of these important problems, that each problem of this kind presents difficulties peculiar to itself, and that local authorities, backed by local public opinion, are best able to assume responsibility for these matters.

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"The existence of a world-wide social and economic upheaval cannot be questioned. The far-reaching effects of this on the physician and on forms of medical practice warrant separate consideration. I am concerned here with the so-called crisis in the intellectual sphere, in the domain of the arts and sciences. Art has always been one of the most sensitive barometers of the times. Of the divers arts only architecture seems to have achieved today clear forms of expression, pointing toward a new epoch. In the sciences the transformation in physics is so amazing as to be almost unbelievable and without parallel since the time of Newton. The questioning of axioms in mathematics, the new forms in logic, are indices of the critical and searching spirit permeating all mental activity."—*Inlow, J. Indiana M. A., April* 1938.

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF ADMINISTRATION

J. N. Baker, M. D.
State Health Officer in Charge

### THE DIRECTOR OF LABORATORIES

Appointment of Dr. Samuel Reed Damon to the Directorship of the Bureau of Laboratories brings to the State Department of Health one thoroughly equipped to discharge the responsibilities of so important a position. At the time of his acquisition he was Associate Professor of Bacteriology in the School of Hygiene and Public Health of Johns Hopkins University, having served formerly as Instructor and later as Associate in Bacteriology in the same institution.

Dr. Damon, born in Lancaster, Mass., June 27, 1893, received his high school education in Lancaster and in Wakefield, Rhode Island. Engaging in college study at Brown University, Providence, he received his Ph. B. degree in 1916, M. A. in 1917 and Ph. D. in 1921.

Before becoming identified with Johns Hopkins University he was Lecturer in Bacteriology at Clark University, Worcester, Mass., and was Assistant Bacteriologist in the Rhode Island State Department of Health. In 1923 Dr. Damon served as Acting Director of the Bureau of Bacteriology in the Maryland State Department of Health.

He is a member of the Society of American Bacteriologists, American Public Health Association, American Society of Tropical Medicine, Alabama Academy of Science; a Past President of the Maryland Branch, Society of American Bacteriologists; Past President Delta Omega, Alpha Chapter, the Johns Hopkins University; and Past President of the Johns Hopkins University Chapter of Sigma Xi.

Dr. Damon has made many contributions to the literature and is the author of a book, "Food Infections and Food Intoxications," published by Williams and Wilkins, Baltimore.

## BUREAU OF LABORATORIES

Samuel R. Damon, Ph.D., Director

### SPECIMENS EXAMINED

LABORATORIES OF THE STATE DEPARTMENT OF HEALTH

FEBRUARY 1938

| | |
|---|---|
| Examinations for diphtheria bacilli | 713 |
| Agglutination tests (typhoid, Brills', undulant, etc.) | 540 |
| Typhoid cultures (blood, feces, urine) | 854 |
| Examinations for malaria | 826 |
| Examinations for intestinal parasites | 4,004 |
| Serologic tests for syphilis (blood and spinal fluid) | 15,007 |
| Darkfield examinations | 23 |
| Examinations for gonococci | 1,253 |
| Examinations for tubercle bacilli | 1,304 |
| Examinations for Negri bodies (microscopic) | 134 |
| Water analysis (bacteriologic) | 813 |
| Milk examinations | 1,861 |
| Pneumococcus typing | 46 |
| Miscellaneous | 833 |
| Total Specimens | 28,211 |

### THE BACTERIAL FLORA OF MILK

Milk is a secretion produced by the glandular epithelial cells lining the alveoli of the mammary glands of mammals from material contained in blood serum or lymph. From the moment of its secretion until its final transformation into other forms of matter, it may be, and usually is, acted upon by bacteria. It provides a particularly favorable medium for growth of bacteria, and, when it is richly seeded at the outset, enormous multiplication will take place at suitable temperatures.

Early students considered normal milk sterile. Later workers have demonstrated that normal milk, even when drawn with aseptic precautions, contains a certain number of bacteria. These numbers vary from quarter to quarter in the same cow, and from cow to cow. Due to the bacteria present in the milk ducts of the cow's udder, the highest number of organisms are present in the fore-milk and the smallest number in the strippings. The average plate count has been given by different workers as varying from ten bacteria per cubic centimeter to several thousands in normal aseptically drawn milk. If the udder is diseased, streptococci, *Br. abortus,* tubercle bacilli, and other organisms may be excreted in the milk in enormous numbers; however, these cannot be considered as normal

bacterial flora of milk, even though organisms such as *Br. abortus* have been found in the milk of 50% of the cows in certain dairy herds.[1]

Pasteur, in his studies on the fermentative organisms of wine, and the temperatures at which they are destroyed, gave an impetus to the study of organisms in all liquids, including milk. Roberts[2] in 1874 seems to have been the first observer to demonstrate that with proper aseptic precautions, small portions of sterile milk could be drawn from the normal udder. A few years later Lister[3] obtained two sterile tubes from ten samples tested in a similar, independent experiment. Because of this and other work showing that normal blood, urine and similar body fluids might be sterile, it was generally believed for fifteen years or more that milk as it was drawn from the udder would be sterile. The organisms found in the tubes which did not remain sterile were regarded as air contaminations.

The earliest recorded determination of the bacterial content of freshly drawn milk was made by Schultz.[4] Moore[5] soon afterwards, using an agar plate technique, proved that it was the exception rather than the rule to find a sample of milk that was free from organisms, unless the sample was taken during the latter part of the milking process from a single quarter of the udder.

Conn[6] states that at the moment milk is secreted by the healthy mammary gland it is absolutely free from bacteria. The early work of Moore[7] and Ward,[8] in which they dissected and cultured various parts of the udder of healthy cows immediately after slaughter and found bacteria to exist in the ducts of such udders, is readily correlated with the observation of Schultz and Moore that the fore-milk contains more bacteria than the later milk, due to the mechanical washing out of the lower ducts by the fore-milk. The reports of numerous workers indicate that the bacteria found in the milk ducts of normal udders are derived from an external source; these bacteria gain entry through the external opening of the teat. They then multiply and progress upward in the udder until brought to an equilibrium by the germicidal power of the milk and the defense mechanism of the animal body.[9]

About the turn of the twentieth century numerous studies were made on the milk supplies of various cities, two of the earliest being those of Sedgewick and Bachelder,[10] and of Park.[11] Sedgewick and Bachelder examined the milk which was on sale to the public in the City of Boston. They generalized that most of the bacteria found were probably harmless "vegetables" luxuriantly thriving in a medium most suitable for their growth. However, they then state that milk in this condition could certainly no longer be considered as sweet, normal or fresh. They described milk as the cheapest and most trusted of human foods and stated that milk infected with pathogenic organisms is more dangerous than an equal volume of water, since the organisms are able to multiply in milk. They defined normal milk as milk drawn from the teat of a healthy cow, and agreed that such milk contains few, if any, bacteria. The result of their study showed that the milk served on farm tables contained an average of 69,000 bacteria per cubic centimeter, and the same milk sold in stores in the city averaged 4,577,000 bacteria per cubic centimeter. Their conclusions were that "uncleanliness furnished the seeds of decomposition, and staleness the time for them to grow."

Park in 1901, in his study of milk, concluded that the number of bacteria in the milk of healthy cows, as delivered in cities depended on: 1. The original amount of germicidal substance in the milk; 2. The amount of contamination during and after milking; 3. The length of time since milking; and 4. The temperature at which the milk has been kept. His observations showed that the numbers of bacteria slowly in-

1. Evans, A. C.: J. Infec. Dis. 18:437, 1916.
2. Roberts, W.: Phil. Tr. Roy. Soc., London, 164:457, 1874.
3. Lister, J.: Tr. Path. Soc., London, 24:425, 1878.
4. Schultz, L.: Arch. f. Hyg., 14:260, 1892.
5. Moore, V. N.: U. S. Dept. Agr. Ann. Rep. B. A. I. 12 & 13, 261, 1897.
6. Conn, H. W.: Bact. in Milk and Its Prod., Philadelphia, P. Blakiston's Son & Co., 1903.
7. Moore: Proc. Soc. for Prom. of Agr. Sc., p. 110, 1899.
8. Ward: Bull. N. Y. Agr. Exp. Sta. (Cornell), No. 178, 1900.
9. Jordan, E. O.: Text-Book of General Bacteriology, 10th ed., Philadelphia, W. B. Saunders Co., 1931, page 667.
10. Sedgewick and Bachelder: Boston M. & S. J. 126:25, 1892.
11. Park, W. H.: J. Hyg. (Cambridge), 1:391, 1901.

crease in milk, even though the temperature is kept at approximately 50°F. after the germicidal properties of the milk have disappeared. Milk rapidly cooled to lower temperatures keeps almost unaltered for 36 hours; milk insufficiently cooled deteriorates rapidly. His statement as regards the germicidal properties of milk is the earliest found in the literature reviewed for this paper, his observation in this connection being: "Freshly drawn milk contains a variable amount of germicidal substances which are capable of inhibiting growth. At temperatures under 50°F. the substances act efficiently, unless the milk is filthy, for 12 to 24 hours; but at higher temperatures the effect is soon completely exhausted."

Rosenau[12] states that, when milk contains bacteria harmful to man, the bacteria almost always get into the milk from human sources, either directly or indirectly. The chief exceptions to the rule are the bovine tubercle bacilli, Brucella, and the virus of foot and mouth disease.

According to Topley and Wilson,[13] the production of clean milk is largely a matter of technique, not of structural equipment or refinement. Provided all utensils are sterilized, the milker's hands and the surface of the udders clean, and precautions are observed to keep falling hair, caked manure and particles of dust from the atmosphere out of the milk, it is possible to produce milk with a very low bacterial count even under unfavorable conditions. It is, however, not easy to maintain a satisfactory technique day in and day out unless suitable conditions and appliances are provided for the workers. To prevent multiplication of bacteria after milking it is essential that the milk be quickly cooled, and that it be kept at, or below, 50°F.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### MAY DAY

CHILD HEALTH DAY 1938

"Speed Children on the Road to Health," is the slogan for the 1938 celebration for May Day—Child Health Day. The sympathetic understanding and whole-hearted cooperation of every physician in Alabama is desired in order that increased though safe speed may be made by children on the road to health.

In recent years interest in May Day—Child Health Day has grown more towards focusing attention upon the health needs and accomplishments of the community, state, and nation. The day is set apart by proclamation of the President as a day when special studies may be made by organized groups of the problems affecting the health and well-being of children. The purpose is to encourage group thinking and action to the end that every child might come nearer to the attainment of his birth rights and be mentally and physically equipped to assume his place in the world of tomorrow.

To accomplish the desired results will require the earnest constructive thoughts of interested lay groups and particularly of the medical and dental professions. It is hoped that the efforts put forth to make the celebration of the day effective may serve as an incentive for greater activities through the entire year in protecting and promoting the health and happiness of every child.

There is ample opportunity for the family physician to make a material contribution to the program in his every day practice. He can advise and administer the immunizing agents that are available to prevent many diseases; he can make complete medical examinations for the discovery of any defects which later might be a handicap; he can refer cases to specialists when their nature indicates such need instead of passing the matter up lightly; he can give sound advice concerning exercise, rest, fresh air, health habits and proper food selection.

The problem of child health really begins before the child is born. The physician, therefore, who will further child health directs his attention toward safeguarding the life and health of the expectant mother as well as that of the child after birth. He is interested in promoting the health and welfare of the entire family and will follow through with his helpful teaching from the time of the first prenatal visit. Everyone is aware that Alabama's infant mortality is unnecessarily high and we have available knowledge of means and measures

12. Rosenau, M. J.: Preventive Medicine and Hygiene, 6th ed., New York. D. Appleton-Century Co., Inc., 1935. page 773.

13. Topley, W. W. C.: and Wilson, G. S.: Principles of Bacteriology and Immunity, 2nd ed., Baltimore, William Wood & Co., 1936. page 1587.

for reducing it. Studies reveal the startling fact that an alarming number of infant deaths occur under one month of age due to poor prenatal and obstetric care and a lack of care during early infancy.

Education, welfare, and public health agencies are all interested in the mental and physical well-being of the child. These organizations, together with civic groups, parent-teacher associations, home and farm extension workers, will be promoting activities aimed toward the improvement of the health of children of Alabama. Physicians, therefore, are urged to lend a helping hand in this concerted effort to help "Speed Children on the Road to Health."

## BUREAU OF VITAL STATISTICS

Leonard V. Phelps, S. B. in P. H., Director

### PROVISIONAL VITAL STATISTICS REPORT, 1937

The year 1937 was an unusually favorable one from a public health standpoint. Mortality statistics given below are provisional and, therefore, subject to correction when the final figures are obtained.

*Births*:—The general trend in the birth rate has been downward for almost a decade. However, the rate (21.5 per 1,000 population) was slightly higher than that of last year (21.2). Compared to rates in other sections of the country, our birth rate has been high. For the U. S. Registration Area the average birth rate in 1936, the last year of record, was 16.7.

*Stillbirths*: — Stillbirths were slightly higher in number (2,651) than in the preceding year; however, the stillbirth rate (41.1 per 1,000 total births) indicates that the final rate will probably be equal to or less than any recorded in a decade. Subsequent to 1929, the trend in the stillbirth rate has been downward.

*Deaths*:—There were 31,085 deaths. The death rate (10.8 per 1,000 population) was slightly less than that of the preceding year, but higher than that of any year of the quinquennium (1931-1935).

*Infant Mortality*:—Deaths of infants under one year numbered 3,922; the infant death rate (63.4 per 1,000 live births) was considerably below the figure last year (66.6) and continues the general downward trend of mortality in this age group. In 1936, the last year of record for the U. S. Registration Area, the rate was 67.1.

*Deaths From Childhood Diseases*:—The picture presented in 1937 from this group of diseases was, in general, a favorable one. A new low rate was recorded from diphtheria (3.4 per 100,000 population). That from scarlet fever (0.4) equaled the all-time low rate recorded in the preceding year, while the figure (15.6) from diarrhea and enteritis, under 2 years, was the second lowest of record; the measles rate (0.1) the lowest in two decades. There were 19 deaths from poliomyelitis, compared with 40 in the epidemic year of 1936. On the other side of the picture, the rate (6.5) from whooping cough was higher than that recorded in either of the two preceding years.

*Deaths From Other Important Causes*:—All-time low rates were recorded for typhoid fever (1.9), tuberculosis (60.8) and all puerperal causes (56.8). The rates for malaria (7.9) and pellagra (10.8) were the second lowest of record; that for nephritis (78.4), the lowest in 13 years. On the other side of the picture, the rate for diseases of the heart (162.9) reached an all-time high; that for cerebral hemorrhage (75.9), the second highest of record. The cancer rate (57.5), although the third highest of record, was below that recorded in the two preceding years. The rate from pneumonia (90.7) was the second highest in 9 years and that from influenza (50.2), in five years. Although the rate from diabetes (10.4) was below that of the preceding year, it was the fifth highest of record.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### AN ANALYSIS OF 830 CASES OF DIPHTHERIA OCCURRING IN ALABAMA DURING 1937

Whenever a case of diphtheria was reported to the State Department of Health in 1937, a questionnaire was immediately mailed to the Health Officer of the County concerned asking for certain information concerning the case. The information requested was grouped under three headings:

(1) Details as to race, sex and age;
(2) History of immunization—agent used—Schick test and result;
(3) Laboratory confirmation.

| | Race | | | Sex | | | Age | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | | C | M | | F | 0-1 | 1-2 | 2-3 | 3-4 | 4-5 | 5-6 | 6-7 | 7-8 | 8-9 | 9-10 | 10-14 | 14+ | N. S. |
| Total | 712 | 5 | 113 | 420 | 3 | 407 | 40 | 91 | 105 | 103 | 101 | 75 | 64 | 51 | 27 | 24 | 61 | 67 | 16 |
| A. | 145 | | 12 | 71 | | 86 | 6 | 14 | 17 | 14 | 16 | 16 | 22 | 16 | 8 | 6 | 17 | 3 | 2 |
| B. | 567 | 5 | 101 | 349 | 3 | 321 | 34 | 77 | 88 | 89 | 85 | 59 | 42 | 35 | 19 | 18 | 44 | 64 | 14 |

A. History of immunization
B. No history of immunization

A total of 830 questionnaires was returned on which the information was sufficiently complete to tabulate. The accompanying tables give these tabulations:

LABORATORY RESULTS

| | | Positive | Negative | None |
|---|---|---|---|---|
| Total | 830 | 452 | 156 | 222 |
| History of immunization | 157 | 89 | 29 | 39 |
| No history of immunization | 673 | 363 | 127 | 183 |

Of the 830 cases reported, 157 or 18.91% gave a history of having received some immunizing agent while 673 or 81.09% gave no such history. No attempt was made to check reported immunizations against official records but there was an attempt to separate into materials administered. In 35 instances toxin-antitoxin or plain toxoid was named. The other 122 are presumed to have been alum precipitated toxoid.

An analysis of these 122 cases as to time interval between the administration of toxoid and the development of diphtheria revealed:

8 received the A. P. toxoid less than one month previously,
3 received the A. P. toxoid between 1-2 months previously,
2 received the A. P. toxoid between 2-3 months previously,
7 received the A. P. toxoid between 3-6 months previously.
14 received the A. P. toxoid between 6-12 months previously,
24 received the A. P. toxoid between 1-2 years previously,
30 received the A. P. toxoid between 2-3 years previously,
14 received the A. P. toxoid between 3-4 years previously,
11 received the A. P. toxoid between 4-5 years previously,
2 received the A. P. toxoid between 5-6 years previously,
7 gave no dates.

The first 8 should be excluded from this list of failures since there was not sufficient time for any immunity to have developed.

The time interval with toxin-antitoxin or plain toxoid ran from 3-10 years.

Of interest is the report that 19 of these 157 children had been given a Schick test and had been pronounced negative. Four of these Schick tests were given less than one month prior to the onset of diphtheria while an additional 8 were within one year. Explanation of these cases must rest between:

(1) That the child received an overwhelming infection,
(2) That the toxin used for Schick testing was not sufficiently potent,
(3) That the child had lost his immunity after the Schick test was read,
(4) That the Schick test is not infallible in measuring immunity.

Twelve of these 19 cases had positive laboratory findings, one had no laboratory studies made and the remaining six reported negative cultures.

What percentage of the children of Alabama have been given some immunizing agent is not known but it is probably greater than the 18% it would be if the attack rate were the same in both groups. It is probable that the 82% of cases are occurring in a much smaller percentage of the population. Another important revelation is that only five deaths occurred among the 157 immunized children and two of these children had received toxoid less than one month previously so that only three deaths occurred in 149 supposedly immunized children. In contrast, at least 10% of the non-immunized children died. From this it would appear that even if the toxoid did not protect completely, it greatly affected the severity of the disease.

## CLINICS AND CLINICIANS

If clinics are expected to function smoothly and efficiently with the goal of venereal disease control, then there must be a regular operator or clinician. He may be one on rotary service serving for one month at a time or he may serve continuously year in and year out. But whatever method is employed there are certain prerequisites needed if the venereal diseases are to be controlled.

Overcrowding and lengthy waits at each clinic session will result in discontented, lapsing patients. If there are too many pa-

tients for one clinic session, then it should be divided into two or three. Long waits can be overcome by prompt attendance of the clinician.

Patients with syphilis have financial, physical and familial problems that may be prominently important to that individual. He or she needs help and assistance that can be given by the clinician or others connected with the clinic. A little time and care with each patient is important. It may prevent the development of serious reactions through the discovery of early signs of trouble. A few words of encouragement and hope may be all that is needed to keep a potentially lapsing patient in regular attendance. A clinic's success is directly proportionate to the interest of the clinician and his associates.

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## THE EARLY TUBERCULOUS LESION

(Published through the cooperation of the State and National Tuberculosis Associations.)

Seven reasons for directing attention again to the early tuberculous lesion and its cure are as follows:

The nature of the early lesion is better understood now than ever before.

The time of life when the lesion is most likely to appear is more clearly defined.

The methods of diagnosing its presence have been developed and perfected.

The subsequent behavior of the early lesion and the ways of its healing or advancement are better known.

Most disabling and fatal tuberculosis originates in this lesion.

Knowledge of the methods of treatment and their proper selection and application is more accurate and reliable.

The far-reaching and vastly superior results of proper and timely treatment of the early lesion are firmly established.

### NATURE OF THE EARLY LESION

The small tuberculous lesion first discovered in the lung is not necessarily an early one. The lesion that is not only small but also recently developed, may be caused by infection from without or by an extension from preexisting lesions, usually tiny or even microscopic, which, for a short or long time, have lain dormant and concealed. Previous examinations, therefore, may have revealed nothing abnormal except perhaps an apparently insignificant apical scar or a calcified hilar lymph node. The development of the early lesion, often called the early infiltration, may be rather abrupt, that is, within a week or a month, or it may be gradual with static periods of apparent quiescence. Rapidity of development, however, is one of its common characteristics. Pathologically it is a patch of tuberculous bronchopneumonia, occupying a section of the parenchyma usually not more than 2 or 3 cm. in diameter, sometimes at the apex but more often just below. The patient has no symptoms or only slight to moderate constitutional ones, chiefly a loss of a few pounds of weight and a little undue fatigue. Fever is not usually detected, and cough, expectoration and bloody sputum are rare at this stage. In some cases a patch of fine rales may be heard directly over the small lesion, but more often the physical examination reveals nothing abnormal in the chest. The roentgenogram shows, as a rule, the small area of soft infiltration in one lung. Tubercle bacilli are not found in the sputum unless the lesion has caseated and broken into a bronchus, and this is not the condition at the very onset.

Case-finding surveys among apparently healthy persons have shown that while no age is immune to tuberculosis, the peak of development is between adolescence and the late twenties. Fellows, in a study of annual examinations of a clerical force of about 10,000 women and 2,000 men, found that in a 5-year period clinical pulmonary tuberculosis developed in 142 previously healthy persons, of whom 83% were between the ages of 18 and 27.

### DIAGNOSIS

The early lesion will be discovered in only a small minority of cases unless organized searches for it are made periodically. The patient, having few or no symptoms of illness, does not seek the physician. Rather, the physician, in his capacity as a farseeing health officer, must seek the patient. Tuberculin testing and x-ray examination of the chest, wisely planned and applied, are indispensable parts of the diagnostic method. If the diagnosis is adequate, it will include not only a recording of the lesion but also an interpretation of its potential significance and the need for treatment. The small size of the infiltration, the lack of

symptoms, and the failure to find tubercle bacilli in the sputum often cloak the situation with a grossly undeserved aspect of innocence.

### SUBSEQUENT BEHAVIOR OF THE LESION

The early infiltration may be absorbed almost completely, leaving behind a small scar, or it may spread, become caseated and liquefied at its center and ulcerate into a bronchus, whence other parts of the lung may become contaminated, the beginning of advanced tuberculosis. Absorption, if it occurs, is slow. The tendency to central caseation is a predominant one, varying in intensity and rapidity. After ulceration and excavation of the lesion occurs, the rate and extent of formation of secondary lesions vary within wide limits. Acute bilateral tuberculous bronchopneumonia may be set up within a few weeks. More often the extensions occur at irregular intervals, and gradually the case drifts into the confirmed chronic state. The eventual contamination and infection of the larynx, intestine and other related structures by the bacilliferous discharges from the pulmonary cavities is frequent.

The frequency of spontaneous healing of untreated early lesions is a matter for further investigation. The most optimistic observers estimate that as high as 40 per cent of the lesion may heal completely. I am reasonably certain, after ten years of special attention to the point, that the majority of early infiltrations developing in young people progress and undergo excavation if they are not promptly and properly treated.

### MOST SERIOUS TUBERCULOSIS RELATED TO EARLY LESION

Sufficient information has been accumulated by the pathologists and from a study of pathogenesis in the living to warrant the conclusion that most disabling and fatal tuberculosis originates from the once innocent-appearing early infiltration. An appreciation of this linkage has been lacking until recent years yet is one of the most important and basic principles in treatment and control. The conception, to be complete, includes the element of time relationships, because, as stated, the extension from the early lesion may be rapid or slow, limited or wide, continuous or discontinuous. Connecting this conception with the evidence that most early pulmonary infiltrations put in their appearance between adolescence and the late twenties, it follows that advanced tuberculosis is unlikely to develop in a person past 30 unless he has acquired a considerable lesion before this age.

### METHOD OF TREATMENT

The tendency is for the early lesion to caseate rapidly. Treatment should aim to prevent, retard or arrest the process. The sooner and the more strictly the rest cure in a sanatorium can be instituted, the more effective it is likely to be. In many cases the treatment of the first few weeks is the most important of all. The younger the person, the more labile the lesion is likely to be and the greater the need for prolonged rest. Consideration of the potential hazard of the lesion, as already discussed, and of the desirability of permanent recovery with the least sacrifice of function often takes precedence and dictates continuation of rest in bed well beyond the time when symptoms have subsided and the hematologic picture is normal. From six to twelve months of sanatorium care is advantageous. Most patients can then gradually resume activities, but a definite limitation of these for another year is usually necessary. Pneumothorax or temporary paralysis of the diaphragm may give the necessary lift to the patient who, on rest treatment alone, does not show definite and steady favorable progress.

### RESULTS OF TREATMENT

I can speak of an experience with more than 100 cases in which the lesions were actually early, since previous roentgenograms showed no disease; they occurred in young people, and observation was possible from one to ten years afterward. This is supplemented by consideration of many hundreds of other cases of rather recent origin in which the duration and course of the disease was reasonably clear though not always verifiable. The experience is not adequate for statistical presentation and I give only a considered judgment, based more on an intensive study of individual cases than on groups. Thus far, most of the untreated cases have progressed into advanced disease. Patients treated promptly and with bed rest at the start have recovered without progression of the lesion in about 90 per cent of the instances. In most

of the others, advancement or relapse, if any, has been promptly detected and usually controlled by artificial pneumothorax. Considering permanence of recovery, preservation of pulmonary function and working ability after treatment, the experience has been much superior to any other plan attempted.

*The Lasting Cure of Early Pulmonary Tuberculosis, J. Burns Amberson, Jr., M. D., Jour. of the A. M. A., Dec. 11, 1937.*

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### AN EPOCHAL CONSTITUTIONAL AMENDMENT

#### AUTHORIZING LIMESTONE COUNTY TO LEVY TAX FOR MALARIA CONTROL

It is evident that to successfully cope with malaria a county-wide program, utilizing all proper effective malaria control weapons, must be inaugurated on a long term and planned basis. The magnitude and difficulties of such a program of construction and maintenance would indicate governmental organization and financing.

Under the statutes of the state, this would call for local legislation—a vote by the people of the county concerned. Such legislation is contemplated in proposed amendment to the Constitution to be voted on in May, and authorized by the Legislature in extraordinary session 1936-37. If the amendment is adopted, it will permit the people of Limestone County to express themselves on being taxed to provide funds for malaria control work. The title of the Act is as follows:

"An Act to provide and submit to the qualified electors of the State of Alabama, at the general election in May, 1938, an amendment to the Constitution of Alabama authorizing Limestone County to levy and collect a tax of one mill for use in malaria control work, in addition to all other taxes now authorized."

This is a pioneer step for combating the malaria problem on an organized basis, a basis now considered essential where the problem is extensive. When the public realizes that malaria is a problem that can be solved, and they see fit to levy a special tax for that purpose, a forward step in the control of one of man's greatest scourges will have been made.

In order to secure malaria control there are four measures to be used, namely, drainage, screening, medication, and use of insecticides.

Drainage, where complete, and where provisions have been made for proper maintenance, is effective in eliminating the disease through destruction of breeding places. Drainage by volunteer or individual initiative or effort, in large endemic areas, is not considered feasible. Outlets may not be procured. Pieces of systems may not be obtainable. Drainage by cooperative effort, the county supplying equipment and charging the operating costs and amortization and depreciation back to the users, would largely encounter the difficulties of drainage by volunteer or individual initiative and effort.

Screening, medication and insecticides, where properly applied and used, are effective in reducing the disease. These three may be considered as adjuncts to drainage, to be applied as temporary measures until such time as drainage can be accomplished.

The three possible methods which might be used in a screening program are: (1) Voluntary initiative and effort; (2) Use of police power in the protection of the public health, the burden of correction being an individual one; and (3) Use of taxation, the correction being then compulsory.

Although voluntary initiative and effort have been effective in limited areas, these have not proved adequate in large areas as evidenced by results of such a program conducted in several counties during 1932. Success depends upon public education and interest. Administrative costs are burdensome in relation to immediate results. The use of the police power alone would hardly provide an adequate tool for effective control, as in matters requiring expenditure of money the police authority and the civil authority are often in conflict. The method embracing possibly both the police power and the civil authority (power of taxation) appears to be the only one by which universal screening could be obtained, though the maintenance problem would be one of relatively large proportion.

Ratification of the amendment by the people of the state, authorizing Limestone County to vote a tax for the purpose stated, will attain the above end and will mark an epoch in public health in Alabama.

J. C. C.

## PHYSIOLOGICAL ASPECTS OF MINERAL SALTS IN PUBLIC WATER SUPPLIES*

In the December 1936 issue of this Journal there appeared an article entitled "Physiological Effects of Mineral Salts in Natural Waters." Bearing on this subject there appeared in the February 1938 issue of the *Journal of the American Water Works Association* an article with the heading above, which was prepared by Sidney S. Negus, Professor of Biochemistry, Medical College of Virginia, Richmond, Virginia. The article follows, reference numbers being omitted since the bibliography will be published in conjunction with the second installment:

Very few inorganic substances, in the concentration found in public water supplies in most sections of the country, have been really proven, by scientific data, to affect the public health. Some substances may affect the odor, color, taste and turbidity, but practically all of these are harmless physiologically even in concentrations sufficient to give high odor intensity, high color and turbidity, and oftentimes disagreeable tastes. These characteristics, especially odor and taste, however, may affect some persons psychologically to the extent that they may develop physiological reactions. The odor factor is so important that professional water smellers and special testing devices have come into the field (Fair and Wells osmoscope). Methods for the procedure of odor testing are being standardized. Most water consumers would turn down water triply distilled and condensed through block tin coils with the criticism that the water tasted "flat." Conductivity water is not considered palatable because people have not been accustomed to drinking strictly pure water. There is obviously much difference between a pure water and a physiologically safe one. It may be a simpler matter to define safe water than pure water. No person knows definitely what pure water is. It certainly is not $H_2O$ in the liquid phase. Defining a physiologically safe water is not an easy matter, however, due to the fact that experimental data are so conflicting.

For esthetic reasons, a drinking water must be as free of taste, color, odor and turbidity as possible, even though the substances causing them are in themselves harmless, and even though the esthetic quality of a water may change greatly without much appreciable chemical change. In other words, water chemists and engineers must, of necessity, be good psychologists as well as water purification experts. Keeping water purification plants spotless and as free of odor as possible, beautifully landscaping them, insisting on personnel of neat appearance and encouragement of visitation on the part of the consuming public may not affect in the slightest degree the purity of the finished water, but such things will go a long way in creating goodwill towards the public water supply in any community.

Along esthetic lines further, the following is a most important consideration. It is agreed by health authorities that human beings, in general, do not drink enough water. One of the most important problems of water works men is to produce a water which the public will want to drink freely. A drinking water with enough free chlorine in it to give it a pronounced chlorinous taste will never harm anyone, but consumers may take it rather than nothing or else not drink it at all. As a general rule, a non-palatable water may do more harm indirectly from a physiological standpoint, due to people not drinking it, than all the chemicals in the water put together may do directly. Therefore, odor, color, taste and turbidity are indirectly very important considerations physiologically.

### GENERAL CONSIDERATIONS

The presence of inorganic material in water is of more importance to an industrial water chemist than to a sanitarian. On the other hand, the bacteriology of potable water is very important, whereas not so much so in the case of an industrial water. The physiological effects of bacteria in a water supply are very well defined. No reference to them will be made in this paper.

The data on physiological tolerance to inorganic impurities in potable water are widely spread throughout the literature on the subject, and are very conflicting, and, to quite an extent, scientifically shabby. To start with, it must be borne in mind that only general statements can be made concerning these physiological effects. The problem is very difficult to investigate, hence reliable information based on exact laboratory experimental data is surprisingly lacking. The limits for chemical constituents have been based largely on the experiences of observers and investigators over considerable periods of time. Much that is known concerning physiological effects has been obtained by the actual use of waters by consumers rather than by exact laboratory studies. Only approximate data can be obtained, since human beings are not alike physiologically and idiosyncracies come into the picture. Then, susceptibility varies with different ages, sex, physical conditions, and so forth. Besides, the effects of small traces of many substances on the body's chemistry are not at all well understood, even by specialists.

Almost every year, another one of the ninety-two elements is added to the list of those having importance physiologically, zinc being one of the most recent. Further, the physiological effect of simple metallic ions may be entirely different from that of complex ions containing the same element. For example, there is no reason to believe that zinc ions and zincate ions have the same effect physiologically. There are so many possibilities and so many variables that it is easily understood why there is such a paucity of reliable data on the subject.

### THE TREASURY STANDARD

It is not well understood, even by some water works men, that pages 24, 25 and 26 of the U. S.

*In two parts. The second installment will appear in the May Journal.

Treasury Department Water Standards for Drinking and Culinary Water Supplied by Common Carriers in Interstate Commerce, June 20, 1925, are not, strictly speaking, part of the standards, but an appendix. The *suggestion*, so far as physiological and chemical characteristics of a satisfactory water are concerned, reads, "The water *should* be clear, colorless, odorless, and pleasant to taste, and *should not* contain an excessive amount of soluble mineral substances nor of any chemicals employed in treatment." Only in the case of lead, copper and zinc are the words "shall not exceed" used. "Should not exceed" are the words used in referring to sulfate, magnesium, total solids, chlorides, iron, caustic alkalinity, odor and taste of free chlorine and carbonates.

Domestic water supplies, which meet the suggested limits and the recommended ones for copper and zinc, are overly safe physiologically since the limits in every case are set quite low. Lead ions, however, are in a different class. It is definitely known that there is a great difference in physiological effects between intermittent dosage and long continued dosage of the salts of heavy metals. Applying limits for water on interstate carriers to domestic waters, which are consumed several times each day over extended periods of residence, is certainly "playing safe," and presumably that is the use the U. S. Public Health Service officials and their advisory committee anticipated would be made of the standards when the suggestions and recommendations were published. This was their only alternative considering the absence of reliable data on the subject in 1925. It seems probable that in the light of more recent knowledge the standards will be revised as to copper, zinc, caustic alkalinity, fluoride and possibly (?) barium and selenium. The danger of barium and selenium ions in a public water supply is so remote that it would be going rather far including them in drinking water standards.

All metals dissolve in water. In discussing the metallic ions commonly found in water supplies, only the simple ions will be considered. No attempt will be made to differentiate between physiological effects of metallic ions in association with various acid radicals.

## COPPER

Copper, the first substance to be considered, has, within the past ten years, been found to be of importance as a supplement to iron for hemoglobin regeneration. The element is known to be an essential constituent of tissue cells. Prolonged heavy exposure to copper ions produces body damage. The physiology concerned is controversial. The traces left in potable water, after purification and distribution, however, are certainly in no way harmful to normal individuals. 0.2 p. p. m. of copper, in drinking water supplied by common carriers in interstate commerce, has been set by the U. S. Public Health Service as the limit above which a water may be rejected. A person drinking two quarts of water a day (the average intake) with this much copper in it would be getting approximately 0.4 mg. of the substance. The body requires at least 2 mgs. a day, so 0.2 p. p. m. of copper is probably helpful, certainly not harmful. The increased use of copper and brass pipes in water distribution and the use of copper sulfate in the purification process as an algaecide, however, make it necessary for one to be on the lookout (in soft waters especially) for excess copper in a water supply. The source of copper from the distribution system is far greater than from the copper sulfate used at the purification plant, especially if the carbon dioxide content of the water increases during distribution and if the water is of low bicarbonate alkalinity.

Chloramines in finished water in the traces they occur, if at all, have never been proven to be physiologically objectionable. Of course, chlorophenols may produce ill tasting and smelling waters, but the right use of ammonia will prevent the formation of these compounds and the chlorinous tastes as well. The suggestion by Major Harold in England and in this country by Griffin as to the continuous use of chlorine and ammonia with copper sulfate to keep available copper from precipitating out as copper carbonate and to secure more prolonged algaecidal action during the purification process does not increase the copper hazard as far as is known. If any complex copper compounds, such as the so-called "cuprichloramine" (which is considered algaecidal), result from this treatment, they may mean very slightly more copper in the water from the distribution system. Copper ions and copper tied up in complex ions may have altogether different physiological effects. Recommending that copper should not be present in potable water over 0.2 p. p. m. has reference to copper ions. No work has been done on the physiological effects of copper tied up in complex ions. All that can be said is that, from consumer experience, in the few places where the newly suggested continuous ammonia-chlorine-copper sulfate treatment has been used no public health problem has arisen. The rather general and unfounded fear of copper in public water supplies plus physical difficulties in making changes have probably kept operators from trying this treatment. It may have advantages from an operative standpoint for some plants.

Practically everything is poisonous and nothing is poisonous if used correctly. This applies to copper ions. Instances may be cited where high ionic concentration of copper has produced body damage while, on the other hand, traces of copper ions are definitely known to be physiologically necessary. The time may come when it will be considered by public health officials to be advantageous biochemically to have traces of copper in public water supplies although they as yet have never come to this even with iodine. Hamilton writes, "One must have supreme faith in the teachings of the homeopathic school of medicine, to be able to recognize the value of minerals in drinking water." A U. S. patent has just been granted, however, for incorporating iron in milk and McGhee is investigating the physiological values of copper and iron metalized milk in the diets of individuals while others are concerned with the use of copper and iron salts in therapy. A number of biochemists and

physiologists claim that the old time method of cooking in copper and iron vessels was of definite physiological importance.

No case of copper poisoning from a purified water supply has ever been definitely proven. Schnetz has fed daily as high as 20 mgs. of copper as sulfate in the treatment of diabetes without any apparent harmful effects. Schneider claims that as high as 5 p. p. m. of copper in a potable water should be admissible and that a greater amount than this affects the taste of the water for some people although other investigators claim that less than this amount will make the water unpalatable. Froboese states, "The lowest concentration of copper in water at which it can normally be tasted is 1.5 mg. per liter." It is necessary for about 30 p. p. m. of copper ions to be present in water before the staining of white plumbing fixtures will begin, so obviously this check is of little value as compared with the sense of taste. So far as all reports of experience and research results are concerned, it has certainly been well proven that a copper limit of 0.2 p. p. m. (about half the amount present in raw cow's milk) is much lower than necessary, even for laundering. Five times this amount or 1 p. p. m. would still be "playing safe."

### ALUMINUM

The aluminum ions which get into a distributed purified water supply, due largely to the use of aluminum sulfate in treatment, have unnecessarily disturbed many communities in the past. Fortunately this aluminum scare is now out of the minds of consumers. Flinn and Inouye and others have proven that food cooked in aluminum utensils have never given evidence of harming anyone. Certainly aluminum ions in the concentration in which they may occur in a purified water supply constitute no public health problem.

### ARSENIC

The little arsenic getting into a purified potable water supply is negligible. A method of determination for it is not even listed in Standard Methods of Water Analysis, neither is this element among those having a limit suggested in U. S. Treasury Department Drinking Water Standards.* Yet ever so often somebody starts worrying about arsenic! Some purification plants manufacture their own coagulants. Using arsenic-free sulfuric acid in the process sounds good esthetically, but means nothing scientifically. It is like reporting analytical data to the fourth decimal place when the method is only accurate to the second. The amount of arsenic getting into the water supply from galvanized iron pipe is negligible since practically no arsenic can be found in such piping.

The English limit of 0.2 p. p. m. arsenic is very seldom met with in a purified water. As indicated before, 1 p. p. m. of a substance in a water ingested to the extent of two quarts daily means that the person gets approximately 2 mgs. of the substance concerned. Two quarts of water with 0.2 p. p. m. of arsenic would be equivalent to 0.4 mg. of arsenic daily. This amount has never been proven as harmful to a person. There are reported in the literature cases of arsenical poisoning traced directly to water from wells in regions where the limestone contains ferrous arsenate, and where much arsenic spraying is done, but I know of no report in the literature of arsenical poisoning from a purified potable water.

*England has a limit of 1/100 grain per Imperial gallon, which is 0.2 p. p. m. The U. S. Food and Drug Administration specified the tolerance for arsenic as arsenic trioxide as 1.43 p. p. m. Considering the proportion of food ingested to that of water, the Food and Drug Administration limit for food is really stricter than the English one for drinking water.

### LEAD

Lead ions seem to have a bad reputation, although some of it is not deserved when it comes to the *traces* found in most purified water supplies. If the very small amounts of lead, which persons ingest by drinking water and eating food, were as harmful as some people believe them to be, there would be many more cases of lead poisoning than are known to occur. The principal reasons why this element is in such bad repute are the following:

1. The lead poisoning cases traced directly to public soft water supplies in New England, Germany, France and England.
2. The difficulty of determining lead accurately in the amounts the element occurs in potable waters.
3. Plumbism cases traced directly to streams and wells near heavily lead arsenate sprayed regions.
4. The rather wide-spread but erroneous idea that lead is steadily accumulated in the body, none being excreted.
5. The publicity given, both in the press and in scientific literature, to plumbism cases due to inhalation (not ingestion) of high concentrations of lead ions, as in the paint industry.
6. Published articles by some able chemists whose conclusions in the field of toxicology are unsupported by physiological evidence.

Based largely upon these facts and not upon unquestionable scientific data, 0.1 p. p. m. of lead is the limit above which the U. S. Public Health Service may reject a potable water on common carriers in interstate commerce.* This is the strictest specification of all the inorganic ions listed. There is no question but that it should be strict, since lead ions are more poisonous than any of the other common ones occurring in a water supply, such as copper and zinc. Perhaps it is best to "lean over backwards" with such a low limit, even though data published since 1925 indicate that it might be raised slightly (e. g., work of Howitt and Cowgill.)

*The Federal Food and Drug Administration's tolerance for lead in foods is 2.57 p. p. m. It is reasonable to assume that a person might take in a day a quarter of a pound of food containing 2.57 p. p. m. of lead. This would mean ingesting about 0.28 mg. of lead. Drinking two kilograms of water (approximately two quarts) containing 0.1 p. p. m. would give 0.20 mg. of lead so the limits on food and water are quite comparable.

A present day adequately purified water contains only minute amounts of lead ions. Lead in a water supply may come from the distribution system, since lead pipes are often used to connect mains with domestic lines. An alkaline, $CO_2$-free water upon leaving a purification plant is negligibly aggressive to lead. Before it reaches the consumer, its aggressiveness may be increased due to acid-forming organisms in remote parts of the distribution system. Oxygen content, the relation between free and combined $CO_2$ and whether or not the water is a ground or surface one are of primary importance in plumbo-solvency. If an aggressive water is allowed to stand too long in contact with lead, some lead ions will get into the water supply. Obviously, depending upon the nature of the water supply, some communities should not use lead piping. Public supplies of purified soft water in the United States at large, however, are the exceptions rather than the rule. New Bedford, Mass., has a ruling that those in charge of collecting the water shall have charge also of the distribution system. Under such an arrangement water works men become definitely responsible for the water which reaches the consumer, whereas in most communities the water works engineer gets blamed for conditions out of his control. Those in charge of collecting or purifying a water know better than anyone else when lead piping in a distribution system is indicated and when its use may even be advantageous. Of course, a home, factory or office building where the drinking water is piped by lead is potentially dangerous for those drinking the water, especially if the water is soft, not buffered, and has had a chance to stand in the pipes for any length of time. Quam and Klein have shown that samples of water containing 0.025 mg. of lead per liter (hardness 21 and alkalinity 10), after exposure to lead pipes for seven days, have increased in lead content to as high as 1.465 mg. per liter. These authors point out that it is entirely possible that the portion of water standing in lead pipe, even if only five feet in length as a connecting line between the main and domestic line, may just reach the faucet in time to empty into a drinking glass. They found new lead pipes more potentially dangerous than old ones. With such a situation as these investigators dealt, however, one would seldom meet. Kehoe, Thamann and Cholak write, "The possibility of significant contamination of city water supplies from extensive use of leaden pipe has been emphasized frequently. This is a potentially important matter wherever lead pipe is employed to distribute water, but in many cities of the United States it has little practical significance, because of the limited use of lead in pipe lines. We have recently noted an unexpected means for the introduction of considerable amounts of lead into water in that pipe joints are luted with materials of high lead content which continue to yield lead to the water of new buildings for some time. In such a building we found lead in the water in concentrations varying from 0.37 to 0.92 mg. per liter, after water had been permitted to stand in the pipes for variable periods of time; after all the taps had been allowed to run freely for 15 minutes, samples of the water showed only 0.03 mg. of lead per liter, and after an hour of running, lead could not be detected."

Kehoe, Thamann and Cholak have cleared up the question very thoroughly concerning the normal absorption and excretion of lead. They have splendid data to show that ingestion of lead ions in normal amounts does not result in steady accumulation of lead in the body. They write: "Apparently an equilibrium is reached after a time, so that a substantially constant concentration of lead remains in the tissues, and lead output becomes equivalent to lead intake." The word "apparently" makes this statement a hypothetical one and not one of fact. This hypothesis, if it can be substantiated definitely as a scientific fact, is certainly at variance from the impression held by most people that the minute quantity of lead ions ingested are withheld by the body until the time when storage is high enough to bring about an attack of lead poisoning. This erroneous and popular view gives the body no credit for being able to eliminate small amounts of lead without injury. Spectrographic methods for accurately determining small amounts of lead have made it possible to prove that the element is a virtually constant constituent of human tissues, a claim made by Devergie in 1838. Whether its presence is accidental or functional is not known. It is not unreasonable, especially after the recent work of Elvehjem and Hart upon the physiological need for zinc, to predict that lead may be present in the body for functional purposes.

The lead problem in public water supplies is still a controversial one. In such a paper as this, further discussion of it would be going too far afield. Suffice it to conclude with these statements:

1. Even water well corrected at the purification plant should not be allowed to stand too long in contact with lead.
2. Water works engineers should check water reaching consumers for lead content. The presence of 0.1 p. p. m. of lead should call for investigation, even though this amount may be a low human tolerance limit for most people.
3. Lead piping should be eliminated in those distribution systems where the water is aggressively soft, swampy, or peaty in origin and has been untreated. It should also be eliminated for carrying drinking water which does not contain substances which will form protective coatings on lead surfaces.

Until more is definitely known about the physiological effects of traces of lead ions, public health officials obviously must be sure that their recommendations are on the safe side.

(To be continued in the May issue)

ANNUAL MEETING
MOBILE
APRIL 19-21, 1938
HEADQUARTERS HOTEL
THE BATTLE HOUSE

## CURRENT STATISTICS

*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA: 1938

| | 1938 Jan. | 1938 Feb. | Estimated Expectancy Feb. |
|---|---|---|---|
| Typhoid | 14 | 14 | 14 |
| Typhus | 21 | 10 | 3 |
| Malaria | 37 | 44 | 65 |
| Smallpox | 13 | 3 | 11 |
| Measles | 640 | 2827 | 385 |
| Scarlet fever | 101 | 67 | 96 |
| Whooping cough | 121 | 83 | 121 |
| Diphtheria | 81 | 56 | 105 |
| Influenza | 1782 | 1196 | 1319 |
| Mumps | 88 | 141 | 155 |
| Poliomyelitis | 6 | 2 | 3 |
| Encephalitis | 1 | 3 | 4 |
| Chickenpox | 338 | 323 | 223 |
| Tetanus | 3 | 3 | 3 |
| Tuberculosis | 209 | 214 | 302 |
| Pellagra | 25 | 24 | 14 |
| Meningitis | 48 | 32 | 9 |
| Pneumonia | 983 | 632 | 584 |
| Syphilis | 1296 | 1776 | 195 |
| Chancroid | 15 | 9 | 5 |
| Gonorrhea | 395 | 292 | 168 |
| Ophthalmia neonatorum | 2 | 0 | 0 |
| Trachoma | 0 | 0 | 0 |
| Tularemia | 3 | 2 | 2 |
| Undulant fever | 3 | 3 | 1 |
| Dengue | 1 | 0 | 0 |
| Amebic dysentery | 0 | 0 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 92 | 63 | .... |

*As reported by physicians and including deaths not reported as cases.
The Estimated Expectancy represents the median incidence of the past nine years.
With the venereal diseases, clinic cases were not included prior to 1936.

# *Medical News*

*(Secretaries of county medical societies and other physicians will confer a favor by sending for this section of the Journal items of news relating to society activities.)*

An Act which provides for registration and examination of medical technicians of Alabama was approved on March 2nd, 1937.

Since the Act specifies (Section 14) that "it shall be unlawful after the first day of October 1938 for any person to practice in this State as a registered medical technician, without a certificate currently in force as provided for in this Act," all physicians (particularly those in charge of hospitals, public health or biological or clinical laboratories) are advised to urge each and every one of their technicians to make application for registration or examination to the Board of Examiners at once.

The following groups of technicians are to be registered without examination, provided such application is made prior to Oct. 1st, 1938:

(1) All medical technicians (M.Ts.) in Alabama registered as such with the Bureau of Registry of the American Society of Clinical Pathologists prior to October 1, 1938—provided their application is accompanied by the payment of the registration fee of five dollars.

(2) Registered medical technicians from other states, upon furnishing evidence satisfactory to the Board that they possess the qualifications prescribed by the Act, or the equivalent thereof, and upon payment of a registration fee of ten dollars.

(3) All medical technicians, having completed an apprenticeship instruction of a year under a qualified physician-pathologist . . . or listed training school . . . and who are engaged as medical technicians in hospitals, private physicians' laboratories, public health laboratories or biological laboratories, and who have been engaged as such for five years after their training—upon the payment of a registration fee of ten dollars.

(4) All medical technicians with college degrees, or with college training (approved by the Board) up to (and including) three years, and who will have completed two years of practical experience by October 1, 1938—upon the payment of a registration fee of ten dollars.

All technicians are urged to immediately send their requests (with their return addresses) to the Alabama Board of Medical Technicians Examiners, Administrative Office, 2925 Pike Ave., Birmingham, Ala., and the properly printed application forms will be mailed to them in due time.

All physicians are asked to kindly cooperate to the extent of getting the application of every technician in the State of Alabama to the Board's administrative office at once.

The Act does not apply to assistants employed by physicians to make laboratory tests whose results are to be used by such physicians in their private practice of medicine and who assume responsibility for the work so performed.

* * *

On the evening of May 16th, at 8:30 P. M., an important Symposium on Modern Oxygen Therapy will be presented before the Jefferson County Medical Society at Birmingham. Speakers and their subjects are as follows:

1. Physiology of Oxygen Want—Dr. Allen Dudley Keller, Professor of Physiology and Pharmacology, University of Alabama;

2. Mechanical Considerations of Oxygen Therapy Apparatus—J. I. Banash, Consult-

ing Engineer, Chicago, Past President of the National Safety Council; and

3. Clinical Response to Oxygen Therapy —Dr. James S. McLester, Professor of Medicine, University of Alabama School of Medicine, Ex-President of the American Medical Association.

Physicians of Alabama and all hospital authorities are invited to attend.

* * *

A five and one-half days' ocean voyage from New York to New Orleans on the $2,500,000 S. S. Dixie starts off the Golfers Special on a delightful trip to San Francisco for the American Medical Association meeting in June. Sponsored by the American Medical Golfing Association, the special will feature six games of golf on the trip to the coast and include sightseeing stops in New Orleans, Houston, Galveston, San Antonio, Los Angeles and Del Monte.

The Twenty-Fourth Tournament of the American Medical Golfing Association will be held in San Francisco at the luxurious Golf and Country Club on Monday, June 13, 1938. This is a thirty-six hole annual competition.

On the return journey of the Golfers Special through Portland, Seattle, Vancouver, Lake Louise and Banff, two games of golf and an all-day boat trip up Puget Sound will be enjoyed.

Non-golfers as well as medical golfers, and their ladies, will be welcome on the Golfers Special. The all-inclusive summer rate on the special train will include air-conditioned deluxe Pullmans, with compartments and drawing rooms only.

For full particulars on the Golfers Special, and on the A. M. G. A. tournament in San Francisco, write the President of the A. M. G. A., Dr. Walt P. Conaway, 1723 Pacific Avenue, Atlantic City, New Jersey; or Bill Burns, Executive Secretary, 731 N. Capitol Avenue, Lansing, Michigan.

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An institute for Negro physicians, sponsored by the Jefferson County Health Department, was held in Birmingham on March 16 and 17, syphilis and tuberculosis being the subjects discussed. Contributors to the program included Drs. J. P. Robertson, Seale Harris, Jr., Clifford Lamar, Courtney W. Shropshire, W. S. Littlejohn, J. M. Townsend, Cabot Lull and L. O. Davenport of Birmingham; Dr. J. D. Dowling, Dr. G. A. Denison and Mr. K. W. Grimley of the Jefferson County Health Department; Dr. P. W. Auston, Opelika; Dr. W. A. Maddox, Tuskegee; Dr. Kellie Joseph, Decatur; and Drs. D. G. Gill, W. H. Y. Smith, Eva F. Dodge, Holland Thompson and Charles Westover of the State Department of Health.

* * *

The American Association for the Study of Goiter, pursuant to its accepted invitation and to correspondence with the Honorary Presidents and attending members of the First and Second International Goiter Conferences, announces that the Third International Goiter Conference is to convene in the city of Washington, September 12 to 14, 1938.

Physicians desirous of participating in the program are requested to submit titles at their earliest convenience. Since the time which it is possible to allocate on the program is obviously limited, it will be necessary for the Program Committee to exercise its best judgment in the selection of speakers and to insist without exception that the speakers conform to the time allocated.

Manuscripts of addresses, papers and discussions delivered or read at the meetings are to be published in extenso in the form of transactions.

The official language of the conference shall be English. Interpreters will be furnished for papers read in other languages.

For further information concerning the conference, communicate with the officers of The American Association for the Study of Goiter or the Chairman of the Program Committee, Allen Graham, M. D., 2020 East 93 Street, Cleveland, Ohio.

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The Northeastern Division of the Association, Dr. W. M. Salter, Anniston, Vice-President, met in Roanoke on March 15. Address of welcome was delivered by Dr. J. R. Manley, President of the Randolph County Medical Society, host to the division.

Dr. H. L. Mueller of the East Alabama Health District discussed "The Care of the Premature Infant"; Dr. W. G. Harrison, Jr., Birmingham, "Clinical Types of Acute Circulatory Failure"; Dr. Seale Harris, Jr., Birmingham, "Management of Functional Cardiac Disorders"; Dr. J. M. Kimmey, Health Officer of Calhoun County, Annis-

ton, "Childhood Type Tuberculosis"; and Dr. J. O. Finney, Gadsden, "The Spastic Colon."

* * *

The annual meeting of the American Association for Thoracic Surgery will be held in Atlanta at the Biltmore Hotel, April 4th, 5th and 6th. This organization represents one of the new specialties in surgery and numbers among its members many pioneers in chest surgery. This is the first time the Association has met in the South. Dr. Stuart Harrington of the Mayo Clinic is President, and Dr. Richard H. Meade, Jr., of Philadelphia is Secretary. The local Committee on Arrangements consists of Drs. Frank K. Boland, T. C. Davison and Dan C. Elkin.

While membership in the Association is limited to 150 members, all members of the medical profession are invited to attend the sessions at the Biltmore Hotel. On the program this year will be papers by Dr. I. A. Bigger of the University of Virginia on "Penetrating Wounds of the Heart"; "Bronchial Obstruction" by Dr. C. A. Jackson of Philadelphia; and "Mediastinal Tumors" by Dr. Evarts A. Graham of St. Louis.

A feature of the meeting will be a symposium on the Surgical Treatment of Pulmonary Tuberculosis in which papers will be presented by Dr. E. J. O'Brien of Detroit; Dr. P. N. Coryllos of New York City; and Drs. R. H. Overholt and E. D. Churchill of Boston. Mr. J. E. H. Roberts of London, England, has been invited to speak on the subject of the Treatment of Pulmonary Tuberculosis.

Entertainment will include a banquet at the Biltmore Hotel and a barbecue at the Druid Hills Golf Club.

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According to latest reports, physicians and their families are evincing a very keen interest in the arrangements made by the American Express Travel Service to see America enroute to and returning from the San Francisco meeting of the American Medical Association. This early interest indicates the assured success of this important convention.

The "See America" movement by deluxe special trains is endorsed by approximately twenty-five state medical associations. It presents an unprecedented opportunity for members and their families to join with colleagues from other states, and enjoy the facilities and service of deluxe special trains, and at the same time visit the many scenic attractions of our western states.

Many physicians, completely immersed in their practices, have hesitated to take such an extended vacation heretofore but now the convention and the attractiveness and economical features of this travel program have brought such a trip within the realm of desirable possibilities.

Picture the beauty and relaxation of such scenes as the Indian Detour in New Mexico, the Grand Canyon of Arizona, Los Angeles and the beauties of southern California, Santa Catalina Island, the famous Columbia River Highway in Oregon, Seattle, Washington, Victoria, Vancouver, Lake Louise and Banff in the Canadian Rockies, Yellowstone National Park, Colorado Springs and many others.

The all-inclusive price is unusually low because of the cooperation of so many important medical societies. It is, therefore, recommended that members avail themselves of the most attractive and unusual program which may not again present itself for some time. An attractive folder, describing these travel arrangements, may be obtained through the Secretary's office or the Transportation Agents, The American Express Travel Service, 82 Broad Street, N. W., Atlanta, Georgia.

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The Fifth Annual Gaston Greil Memorial Lecture of the Montgomery County Medical Society was delivered by Dr. H. E. Kleinschmidt of the National Tuberculosis Association on Friday evening, March 25th, in the auditorium of the Baldwin Junior High School, Montgomery.

* * *

The Alabama Medical Technicians Association will hold its second annual convention in Birmingham, Alabama, May 4, 1938. Registration will begin at nine A. M. in the lobby of the Tutwiler Hotel. Main features of the program are lectures and exhibits on practical laboratory procedures; election of officers and a banquet. All technicians in the state are invited to the convention.

# Book Abstracts and Reviews

**Essentials of Prescription Writing.** By Cary Eggleston, M. D., Assistant Professor of Clinical Medicine, Cornell University Medical College, New York City. Sixth edition, revised. 155 pages. Philadelphia and London: W. B. Saunders Company. 1938. Cloth, $1.50 net.

This little book of 150 pages is intended as a guide to students of medicine in mastering the mysteries of prescription writing. There are instructions in the use of Latin words and their correct endings, the acceptable abbreviations, weights and measures, methods of calculating various dosages, various vehicles and notes on coloring solutions and incompatibilities. The recent revision of the U. S. P. and N. F. necessitated some changes in the 1933 edition of this book but there have been no radical changes in the text. Physicians who have not yet ceased to study might improve their own ability to write prescriptions that are not only scientifically accurate but also correct in form and endings.

C. K. W.

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**Handbook on Nasal Accessory Sinuses.** By Frank L. Alloway, B.Sc., M. D., Formerly Chief, Department of Otolaryngology, United States Diagnostic Clinic, Washington, D. C.; Fellow A. M. A., Academy of Otolaryngology and Ophthalmology, American Board of Otolaryngology; Lieutenant Colonel, Medical Corps, United States Army (R); Flight Surgeon, United States Army (R). Otolaryngologist at Holston Valley Com. Hospital. Kingsport Press, Inc., Kingsport, Tenn. 1937. 121 pages. Cloth.

The aim of this sketchy little book is to set forth in simple and concise form some of the basic principles of nasal accessory sinusitis. The author believes that the general practitioner can in a few hours gain a fair knowledge of the subject. After covering the anatomy of the sinus in nine pages, the author takes up the symptoms, pathology and diagnosis of sinus disease. The chief chapter is that devoted to treatment—operative and non-operative. Chapters of a few pages each consider sinusitis versus eye disorders, osteomyelitis of the skull and chiasmal tumor in relation to sinuses. There are only five illustrations and they are sketchy and inadequately labeled and legended. There is no index. It is difficult to know whom this book would most serve. The dearth of illustrations would leave much to be desired by the medical student and general practitioner. The searching student in this special field would most surely turn to some such work as that of Skillern or Hajek.

J. T. C.

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**Maternal Care: The Principles of Antepartum, Intrapartum and Postpartum Care for the Practitioner of Obstetrics.** Approved by the American Committee on Maternal Welfare, Inc. Prepared by Dr. W. C. Danforth, Dr. G. W. Kosmok, Dr. R. L. DeNormandie, and Dr. F. L. Adair. Dr. F. L. Adair, editor. Cloth, $1.00. Paper, 25c. Pp. 93. Chicago: University of Chicago Press, 1937.

For years obstetricians have felt a growing need for a book which would give the general practitioner the fundamentals of prenatal care in a concise form. The older textbooks did not give much attention to prenatal care and medical students graduated with little actual knowledge of it and the adequate technique of home deliveries. The authors, in preparing this book on Maternal Care, have placed sufficient information, in a simple and concise manner, in the hands of the physician to enable him to give his patients adequate prenatal supervision. The section on intrapartum care gives detailed instruction for home deliveries which are simple enough to be used in any home. Indications and contraindications for forceps, versions and extractions, and breech deliveries are clear and concise. Home deliveries conducted under the conditions described would make for greater safety for mother and child with fewer complications of the puerperium. The authors stress the necessity for the postpartum examination at the sixth week and the value of corrections of any complications. While not indexed, the physician will find he can use this book for ready reference though it should not replace the later textbooks. It would be no exaggeration to say, that, if a majority of the general practitioners in this country would acquaint themselves with the wealth of material in this book, there would be a marked improvement in antepartum, intrapartum and postpartum care, which would produce a marked decrease in the maternal and fetal mortality and morbidity. It would seem that no physician could afford not to add this book to his active library.

E. F. D.

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**Pulmonary Tuberculosis in Practice: Modern Conception.** By R. C. Wingfield, B. A., M. B., B. Ch., F. R. C. P. Medical Superintendent, Brompton Hospital Sanatorium, Frimley; Formerly Tuberculosis Officer, St. Thomas's Hospital. Baltimore: William Wood and Company, 1937. 122 pages, illustrated with 42 illustrations. Cloth. $2.50.

This book, though written by a specialist on tuberculosis, is not designed for other specialists but for and with an understanding of the problems and time limitations of the busy practitioner.

It is definitely for the general practitioner because it is brief, concise and to the point in phraseology. It gives a simple and understandable classification of the usual progress of the pulmonary lesion, with typical clear pictures and illustrations accompanying.

The author reveals that his position as superintendent of a large tuberculosis sanatorium has given him a wide range of knowledge into the problems of the general practitioner. By the same token this little classic is a boon to the practitioner for it devotes brief and snappy discussions on things the physician must know and be alert regarding, if he is to be able to answer his more intelligent and discerning patients who now-a-days are becoming ever better informed on tuberculosis.

It precisely answers with short-order technique the importance and treatment of such tests and symptoms as the Mantoux reaction; the blood sedimentation test; hemoptysis; pleural effusion; ischio-rectal abscess; spontaneous pneumothorax and tuberculous laryngitis.

To complete this nut shell of valuable at-the-finger-point information it is printed in clear, heavy, large, restful sized type, a jewel for a medical reference jewel box.

H. T.

# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7, No. 11** **Montgomery, Alabama** **May 1938**


## SOME THOUGHTS ON THE MEDICAL PROFESSION*


By
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Knowing you will be served at this meeting a full measure of scientific food to tax your mental digestion, I decided it might be acceptable as a mental diversion for me to address you in a lighter vein. Conforming with this decision, as well as my personal desire, I have selected as my subject, "Some Thoughts on the Medical Profession."

In the whirligig of time, wondrous have been the changes wrought in medical education. When, fifty-two years ago as a country boy with less than three years of instruction in schools of learning, I donned my professional swaddling clothes and began the study of medicine, there was no such thing as a premedical course nor indeed were there any premedical educational requirements. When Johns Hopkins established its premedical requirements, Dr. Osler, the professor of the practice of medicine and one of the world's greatest clinicians, is quoted as having said to one of his associates, "You and I are fortunate in being teachers in this college, for we could not qualify as students." The premedical course furnished by colleges today is but a highway leading to the study of medicine. As one travels this highway, he should broaden his knowledge into a firm and substantial foundation upon which he may erect a creditable structure of medical learning. He should train his mind not simply to remember what he hears but to think independently, to interpret phenomena, to reason logically to the end that he himself may be able to uncover new truths to add to the storehouse of medical knowledge. Lastly, this period of premedical education is a period of self-inventory. It is a period in which one should search his inner soul for a positive and unchangeable decision as to whether he really and truly wishes to study medicine, to go into a profession, though saturated with sympathy for suffering humanity and whose achievements like the ever-widening waves of the inviolate sea shall touch the uttermost shores of time, nevertheless a profession that demands of the individual as a price of success, in the language of J. Chalmers DaCosta, "A complete self-surrender and the wearing the rest of his life the iron yoke of duty." If one is not willing to pay this price, if he cannot free his mind of every thought of other avenues of human endeavor as a possible life-work and concentrate on medicine, he may be sure he will be lacking in enthusiasm, as the motive power of accomplishment, to drive him on to a creditable success. There is no failure so disastrous as a medical failure. A medical failure means not simply the waste of a comparatively large amount of money in acquiring knowledge of no practical value in any other field of endeavor, but it means the waste and loss of six or eight formative and precious years of life—years that cannot be retrieved and put to use in any other activity.

The growth of scientific medicine has multiplied many fold the obligations and responsibilities of the medical man. The period of the calomel, castor oil and quinine doctor is rapidly coming to a close. The comparatively few remaining representatives of this period are tottering with age and calmly awaiting their approaching end. They honestly and truly wished to serve suffering humanity. They did serve suffering humanity, but the paucity of known scientific medical truths necessitated their sailing uncharted seas and their services were chiefly empirical. All praise, all honor to them for their self-sacrificing devotion to the cause of the sick.

The medicine of today demands more than a mere wish, a desire that comes from

*Delivered before the Association in annual session, Mobile, April 20, 1938.

a sympathetic heart to serve. It demands a love for the science of medicine as an impelling force to spur one on to the mastering, as near as possible, of all known medical truths and the uncovering of new ones as instruments of efficiency in that service. Plato asks, "Does the physician seek to cure the sick or make money?" and answers, "To cure the sick." My friends, the seeker for pelf and place should turn away from the highway leading to the practice of medicine. Public acclaim and applause do not come to the medical man to cheer him on in the dark and weary hours of his toil. He must find encouragement and support in the thought of the nobleness of his work, winning for him the confidence, respect and love of those in the community in which he labors.

Riches will not be his to claim but he can and should have a financial return sufficient to support a home in comfort. He can and should have a return sufficient to give the little cluster of human jewels that may adorn his fireside all the comforts and advantages of the community. He can and should have a return sufficient to lay aside a competency to provide against need and want when the evening shadows of life are rapidly stretching from the western horizon. The merchant prince, the capitalist and the industrialist fill their coffers with gold and enjoy the money-made luxuries of life. The statesmen form, and the soldiers enforce, the policies of their government and go down in history as benefactors of their country. The orator whips into a fury the passions of men and receives the plaudits of the multitude. The doctor toils on day after day, night after night, until the "evening embers of his life change from red to grey" with no other reward than the greatest of rewards, the consciousness of duty well done. Stephen Paget has well said, "if a physician's life may not be a divine vocation, then no life is a vocation and there is nothing divine."

In the early period of man's existence, the day of the river-drift and the cave-dwelling man, the sphere of his activities was confined to acquiring the needs of the physical being, but as time, inexorable time, rolled on in its tedious though tireless way, there was the dawning of another day—the day of the intellectual man—and ere the morning sun of that day did lift itself in the eastern horizon to "kiss the pearly dew of a perfect dawn," man, intellectual man, did dimly enter fields anew and drive the ploughshare of research in soil yet untried. Few and niggardly were the responses to his primeval efforts. Discouragement, yea despair, must oft have been his lot but "Will," that great driving power of the mind, would not be denied. It drove him to his task, back and back again, until at last the stubble, unworked soil became the fertile field of science, yielding an abundant harvest of truths to enrich the storehouse of man's knowledge. The last century has indeed been replete with scientific achievements. This truth applies with no more force to any department of science than it does to that of medicine. No soil has been more industriously worked, no field more assiduously cultivated, than has that of medicine. The pioneers of medicine have blazed the way through the shadowy and tangled jungles of doubt and uncertainty to the magnificent paths of imperishable truth —paths that we of today are traveling and must broaden into highways leading to the more effectual rescue of suffering humanity from the ills of the flesh.

Interesting and inspiring as would be a review of the activities of these pioneers, this is obviously an impossible task and we must content ourselves with the briefest of reference to only a few of those noble souls.

For more than thirteen centuries the anatomical teaching of Galen (130-200 A. D.), founded on the dissection of lower animals, was the guiding light for the medical profession. In 1543, Andreas Vesalius, at 39 years of age, published two anatomical treatises based on human dissection which displaced the Galen school.

William Harvey (1578-1657), the foremost physician of the 17th century, described in 1628 the circulation of the blood.

In 1690 Antonj van Leeuwenhoek (1632-1723), not a physician himself, brought the microscope to the use of the medical profession.

The brilliant Frenchman, Francois Bichat (1771-1802), whose life was cut short by tuberculosis, is said to have done 700 autopsies one winter season in his intensive study of the normal and diseased structures of the body. He deserved being designated the founder of histology.

Karl Rokitansky (1804-1878) was the outstanding worker in the field of anatomy

and pathology of the 19th century. Truly he chose as his life's companions those who "had passed beyond the reach of human harm or help," as he is reported to have performed on the average of one thousand autopsies a year for forty years. He had four sons—two doctors and two singers—and he was wont to say he "had two healers and two howlers."

Virchow (1820-1902) of Germany saw and studied through the microscope the morbid changes in the structure of the body caused by disease and gave us our system of cellular pathology. In Germany there was a law forbidding any one to ascend the throne who had cancer. The Crown Prince, soon to go on the throne, developed a suspicious disease of the throat. Queen Victoria of England was anxious that the disease of the Crown Prince, her grandson, be declared non-cancerous. She secured the services of M. McK., a very capable throat specialist in London, to go to Germany and examine him. McK. removed a piece of tissue from the patient's throat and submitted it to Virchow for microscopic examination. Virchow reported non-cancerous. McK. returned to London and was knighted by the queen. The Crown Prince became Emperor of Germany and died with cancer of the throat. The profession never believed Virchow made a mistake, and least of all did it suspect him of making a false report. But the profession did suspect McK. of deliberately removing tissue from the healthy portion of the Crown Prince's throat and submitting it to Virchow. Virchow continued in the full enjoyment of the confidence and respect of his fellow workers. McK., knighted, became a practical outcast in the profession and spent his latter years in voluntary exile from his country. Did McK. "crook the pregnant hinges of the knee where thrift may follow fawning?" Suspicion's foul breath answered, "Yes"; and forfeited him a future filled with promise. In contrast, let us recall another instance in the world's history involving the medical man's integrity and firmness of character.

In that disastrous retreat of the French Army from Moscow, when soldiers were falling by the wayside like autumn leaves in a wintry blast, Napoleon, before whom the governments of Europe trembled, sent for Baron (Dominique Jean) Larrey, Chief of Medical Staff, and expressed a desire that the men who could not keep up with the march be given some drug to end their lives and prevent further suffering. Larrey's reply was, in substance, "My profession, Sire, is to preserve, not destroy, life and however much I may sympathize with your purpose, I will not comply with your wish." He refused to betray the confidence of the soldiers of that shattered and wretched army in their medical men and fearlessly held sacred the honor of his profession. Larrey, beloved by the soldiers and declared by Napoleon to be the most virtuous of men, is remembered with pride by the profession as one of the greatest contributors to the uplifting of military surgery and his memoirs on military surgery are considered classics.

Let neither fear nor favor rule and direct the medical man's course. Sacrifice ties of friendship, if you must, but retain at any cost the right to the respect and confidence of all men. Respect and confidence, justly forfeited, scar the conscience and shackle the feet of progress.

An impetuous son of a French tanner, with naught but a mind and a will to do, discovered and proved to the world that there could be no fermentation and putrefaction without the presence of micro-organisms and that many diseased conditions were caused by germs. Thus, Louis Pasteur (1822-1895), not primarily a physician, became the founder of scientific medicine. An Englishman, Joseph Lister (1821-1912), entering the surgical section of an Edinburgh hospital, became aroused and depressed by the fearful mortality following open wounds accidentally or purposely made (50% of all amputations and 70% of all open fractures died from sepsis), set himself to the task of discovering the cause and the prevention of this terrible loss of human life. His investigation led him to the work of Louis Pasteur, a study of which convinced him of the soundness of the conclusion that suppuration and gangrene were caused by germs. Lister then turned his attention to a search for a chemical agent that would destroy these germs. He observed at Glasgow that sanitary tanks were prevented from becoming offensive by the use of a crude creosote mixture. He reasoned that if this mixture would hinder offensiveness in these tanks, why should it not prevent the violent offensive gangrenous

suppuration in wounds? A test proved the soundness of his reasoning. Carbolic acid being identified as the active ingredient of the crude creosote mixture became Lister's first antiseptic agent. "A prophet is not without honor save in his own country." Notwithstanding Lister's results continued markedly better than those of his colleagues and countrymen, they not only refused to accept his methods and teachings but subjected him to all kinds of criticism and ridicule—so much so that when he accepted a position at King's College, London, the nurses and other attendants in the hospital, following the example of the surgeons of London, treated him with gross discourtesy and disrespect. But the surgeons of other countries, thirsting for knowledge and seeking better means for service, flocked to Lister's clinic by the hundreds to learn and adopt his methods. The English surgeons were the last to accept Lister's work, and it is positively asserted that America and Germany taught England surgical methods she would not accept from the master, Lister, himself. Under all criticisms, ridicule, discourtesies and disrespect visited upon this heroic soul by his colleagues and countrymen, he did not waver, he did not falter, but, like an intellectual athlete, stood in the scientific arena and successfully challenged all comers who opposed the principles of clean surgery—principles, the application of which enables us today to invade the very domain of thought with impunity and successfully suture the human heart.

Those of us who permit jealousy and envy—the meaner and lower impulses of human nature—to rule and direct the course of our lives will be rewarded with a bitterness of soul to becloud the sunshine of life's joy and happiness.

In a little village, Jefferson, near Athens, Georgia, lived a country doctor who discovered at an ether, not a cocktail, party the general anesthetic properties of ether and became the first person in recorded history to bring sleep to the eyelids and insensibility to the body of a surgical patient for operation. Yes, Crawford W. Long of Georgia in 1842 gave to the world "the priceless boon of anaesthesia." A few years later—1846—W. T. G. Morton, a dentist, demonstrated in the Massachusetts General Hospital the anesthetic property of ether under the name of "letheon." He used this latter name to conceal the chemical nature of the agent as he wished to have it patented, which he did, for his selfish financial gain. Dr. H. W. Wells, another dentist and a former partner of Morton, claimed priority to Morton in the use of ether. C. T. Jackson, a physician of recognized ability and professor of chemistry at Harvard, a close friend and preceptor of Morton, who had lived in his home, claimed he advised Morton to use ether after Wells lost a patient under nitrous oxide inhalation. The controversy between these three men became intense. Morton endeavored to profit under his patented rights but the profession of medicine refused to use the agent unless Morton would reveal its chemical nature, as it was contrary to its principle and teaching to lend aid in keeping secret for selfish gain the nature of any agent of common good to suffering humanity. Morton had a "bill" introduced in Congress to pay him $100,000.00 for the discovery, but the evidence of Long's priority prevented the "bill" passing. Efforts were made to bring Long into the controversy that had become extremely bitter between Morton, Wells and Jackson. Long refused to do more than state his case and present evidence in support of his claim. He sought no financial gain and manifested no bitterness toward the other three claimants for priority. In the even tenor of his way he lived on, in the full enjoyment of the respect, confidence and love of the people with whom he labored, and died at sixty-two years of age. In recognition of Long's services his colleagues in Georgia erected a memorial to him in Athens; another stands to his memory at Jefferson; and the State of Georgia has his picture in its capitol building at Atlanta, as well as his statue in the Hall of Fame in Washington, D. C. Likewise hangs on the wall of the Hall of Anesthesia of London, England, a full size painting of him. In Paris, France, is a full size statue of him. On the wall of the University of Pennsylvania hangs a bronze tablet to his honor.

Let us now turn for a moment to Wells, Morton and Jackson. Wells committed suicide when thirty-three years old. Morton, poverty stricken, wrecked in mind and body, died at forty-nine years of age with brain hemorrhage. Jackson became insane and spent the last seven years of his life in an asylum.

In the most gratifying onward march of medicine the United States of America, "a country crowned with vast and marvelous achievements," has, since attaining her position among the nations of the world, taken second place to none. Scientifically she has step by step kept pace with the others; and in practical application she stands fully abreast, if not in the lead, of all others. We of this section of our united and common country have just cause for pride in the part played by the men south of the Mason and Dixon line. Long, as we have noted, gave the waiting and suffering world the heavenly boon—ether. Josiah Nott, of Mobile, Alabama, losing four of his eight children from yellow fever, published in 1848 a paper in the New Orleans Medical Journal suggesting the mosquito as being responsible for the spread of this disease. This was fifty years before the notable work of the Reed Commission in Cuba and thirty years before Carlos Finlay of Havana directly and specifically charged the mosquito with being the carrier of the yellow fever germ. Nott was the first man to correctly describe coccygodynia and remove the coccyx for its cure. In 1859 he established the first medical college in Alabama. This college continued in existence, except during the War Between the States, until a few years ago, when it was merged into the Medical School of the University of Alabama. May I digress to say that a short time since it was my good fortune to visit the Josiah Nott Medical Building at the University of Alabama? I saw there a class of more than fifty as fine young men and women as any school could wish to boast, bending over their dissecting tables diligently seeking knowledge. The fact that these young people would not be privileged to finish their medical training at that school caused me to think what a shame, what a crying shame, what a damnable outrage it is that this great state does not have a full-term, four-year, medical school. My friends, this Association, as a legal arm of the state government, has an implied contract with the people to lead in medical thought; it is, therefore, clearly within its province to advocate a full-term medical school and make it a continuing order of business until the end is accomplished.

J. Marion Sims, born and reared in South Carolina, after losing his first two patients, who were children at Lancaster, threw his sign in a well, got on his horse and came to Alabama where he began to practice medicine at a crossroads settlement known as Mt. Meigs, some twelve miles from Montgomery, Alabama. After a few years working with the farmers and Negroes of that community, he removed to Montgomery, then a small village, where he began giving special attention to surgery. Here he invented an instrument and developed a surgical technique that enabled him to cure a condition in women considered the world over as incurable and that made the lives of many mothers a living hell. Yet a little later he went to New York where, in the face of violent professional opposition that would have crushed one of less fortitude, he established the first hospital in the world exclusively for the treatment of women. The magnificent Women's Hospital of New York stands today as a living monument to the genius and determination of this man. Still later we find Sims in Europe traveling from country to country; and, through his superb surgical skill, bringing health and happiness to women of every class and creed and teaching the European surgeons the surgical technique he developed in Montgomery, Alabama. After some years in Europe he returned to New York and resumed his work in this country. A short time before his death in 1883 he visited Montgomery, the place of his early surgical triumphs; and, it is needless to say, was received with every manifestation of love and devotion by the friends of his earlier professional years.

At the headquarters of the American College of Surgeons in Chicago, there is a magnificent building to the memory of that great teacher and master surgeon, John B. Murphy. On the front of its massive bronze doors is carved the features of six notable characters in medicine. Two of these are sons of the United States of America and both of them sprang from the loins of the South. Ephraim McDowell of Danville, Kentucky, was the first to remove, and remove successfully, an ovarian tumor. This operation was done in 1809, many years before the discovery of anesthesia or antiseptic surgery. The moral courage of McDowell was only excelled by the heroism and fortitude of Mrs. Crawford, the patient, who had been told the operation had never been performed and was simply an experiment. She was compelled to ride a mule

fifty odd miles over the tractless mountains of Kentucky to reach Danville and the size of the tumor was so great as to make it necessary to support it on the horn of the saddle.

The features of the second son of America on those doors are of a man born in Alabama, yes, in this city, Mobile. A city kissed by the magnolia-scented breezes from the Gulf and beautified by the myriad colored petals of the azalea and wistaria. His name is a common heritage to our state yet he was not an Alabamian. Reared and educated in the South and yet not a Southerner. For years directing one of the great departments of these United States, he was not an American. A man of no country, but a man of every country where the tongue of man is heard, was the world's greatest sanitarian, William C. Gorgas.

In conclusion, think not, my friends, these men did the "primrose path of dalliance tread." No, their happiness and joy chose rather the steep and rugged way of toil. The history of their lives bears witness to truth that success in life depends infinitely more upon a strong persevering "will" than it does upon talent, fortune and favorable circumstances. "What is talent without it? It is like the coruscation of a vivid though transient flash of lightning—it dazzles only to make the darkness that follows more felt. Of what avail are fortune and favorable circumstances without it? At most they only furnish comfortable hives for drones."

## THE RELATION OF PUBLIC WELFARE AND INDUSTRIAL DEVELOPMENT TO PUBLIC HEALTH AND MEDICAL EDUCATION IN ALABAMA*

By
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I appreciate very much your kind invitation to address you again on some aspects of medical education in Alabama. On May 19, 1930, I talked to you on "Progress in Medical Education and Its Relation to Alabama."[1] That you invite me to speak to you further is encouraging in that it indicates your sustained and continuing interest in medical education in this state. Since 1930 substantial progress has been made in strengthening our School of Medical Sciences, as the Council on Medical Education now designates those schools which give only the first two of the four-year medical course. The enrollment quota for our first year class has been cut 28 per cent. Quantitatively entrance requirements have been increased 50 per cent; from 60 to 90 semester hours. Qualitatively the standards of admission and promotion have been sharply improved, and every applicant for admission is investigated very carefully as to character, habits, ethical standards and ideals of social responsibility, before he is matriculated. Our faculty, library and equipment, both for teaching and for research, have been considerably strengthened. Our building, erected in 1920 for a medical school, is good enough, although our library and research space is growing limited, but we are not so much interested in a new building until our future development is more definitely fixed. We are much more interested in character and brains than in bricks and space, just as we are more interested in *what* our four-year school is going to be than in *where* it is going to be.

The subject announced for the address to you this evening has been chosen because Birmingham is acknowledged industrially, commercially and financially as the most important center of Alabama. I would emphasize, however, that our comprehension of medical education and of medical service has from the beginning embraced the whole state and has included not only undergraduate medical education, but also graduate medical education, short review courses for graduates, extension work in the form of clinics carried to the smaller towns and rural districts, nursing education and all forms of medical educational service to all parts of the state, in close cooperation with the State Board of Health. These plans were presented before the State Medical Association in Mobile in 1929.[2] With this review our introduction brings us up to the subject of the hour.

*Delivered before the Jefferson County Medical Society, Birmingham, Ala., February 7, 1938.

1. Graves, Stuart: Progress in Medical Education and Its Relation to Alabama, Bull. Jefferson County Medical Society 2: 3.

2. Graves, Stuart: University Plans for Medical Education in Alabama, Trans. M. A. S. A. 1929, 277.

(Between the delivery of this paper on February 7th and its publication, the 34th Annual Congress on Medical Education and Licensure was held in Chicago on February 14 and 15. The author cannot lay claim to the gift of prophecy, because graduate medical education has been discussed for many years, but he would urge every doctor in the state to read "University Plans for Medical Education in Alabama," in its relation to graduate instruction and extension clinics, and compare the plans projected therein with the most interesting papers delivered at the Congress by Doctors Abell, Musser, Bruce, Evans and Bachmeyer in the Symposium on Graduate Medical Education. Nothing could emphasize more the value of a four-year school of medicine in Alabama, not only to the laity but also to the medical profession.)

Because Birmingham is the chief city of Alabama, in the center of the most important industrial section of the state, because the prosperity of the whole state is more or less affected by its material development, and because the medical profession of Jefferson County must be very vitally concerned in all that affects the public welfare and industrial growth of this area, I shall try to demonstrate tonight to the largest county medical society of the state that public welfare and industrial progress are very definitely dependent upon public health and that public health and its continued progress in Alabama in turn will become more and more dependent for its full fruition upon the development of medical education within the state.

In searching for material for this address I turned, not to the library of the School of Medicine, but to the library of the School of Commerce of the University. There I found a rich field which I hope to explore more thoroughly because the lack of proper medical service in industry apparently constitutes another of those great fields of waste in American life which must be corrected as we turn toward the intangible frontiers of social advancement, now that our nation has no longer the frontiers of geography. And in this connection let me express the hope that you will follow up this thought by reading "The American Day," David Cushman Coyle's $1000 prize essay in the February Harper's.

Birmingham has one fine example of the value placed upon industrial medicine by a great corporation. Whether or not we like the advance of industrial medicine, we must admit that big business frequently leads the way in the efficient handling of such problems. For that matter civilization has followed the flag of commerce since the days of the Phoenicians. And so it was not surprising to find in that new and most interesting publication, "The Personnel Journal of the Personnel Research Foundation," an article by the medical director of the Standard Oil Company of New Jersey,[3] emphasizing the monetary value, let alone the social value, of efficient medical service.

"It is astonishing to find how little the average business executive or doctor knows about industrial medicine," says this medical director. "He usually considers it a luxury which only the larger companies can afford, and has only a very hazy conception as to the functions and value of industrial medical service. It should also be noted that organized labor has not taken a stand in favor of industrial medical service. When discussing the value of such work we stress the profits to the employer because he is the man to whom the idea must be sold. In reality the profit possibilities are greater for the employes, and if labor leaders were really interested in the welfare of their members they would demand adequate plant medical services.

"This maladjustment of medicine is a serious problem. Unless the employers who now do not provide medical service awaken to the fact that they are lagging far behind social trends and unless labor demands the advantages of good industrial medical service, legislation may force upon them a plan which will be unsatisfactory to both groups."

This alternative, I take it, will be an ill-guided attempt to force upon doctors and laymen alike some form of socialized medicine which will lack that individual relationship between doctor and patient which has characterized efficient medical practice since the days of Hippocrates and the priesthood in medicine. And that is to be avoided at all costs! No thinking man who follows modern trends believes citizens in any walk of life are going to have the individual freedom they have enjoyed in the past jeopardized. Modern society is too highly mechanized. Like it or not, we are going to be more and more highly organ-

3. Schoenleber, A. W.: How Industrial Medicine Aids in Management, Personnel Journal, Personnel Research Federation 14: 297-302, 1936.

ized and more and more subjected to centralized authority. The important thing, it seems to me, is not to try to obstruct the inevitable, but to determine how we may adjust medicine to modern tendencies in such a way that the individual, human contact between doctor and patient will be best preserved under future conditions. It is our problem to maintain a controlling influence upon that centralized authority so that the best principles and traditions of medicine will be maintained.

It is hardly necessary to cite before the Jefferson County Medical Society statistics usually used on such occasions. Most of you are familiar with the widespread physical disability revealed by the army draft of 1917. You know that the United States Industrial Commission estimates that each employe loses an average of nine days per year on account of illness. The discouraging prevalence of venereal disease has been made common knowledge as the result of the recent drive of the United States Public Health Service.

Dr. Michael Lake, medical director for R. H. Macy and Company of New York, states[4] that his company's ten-year medical program actually saved its cost many times over.

1. It tended to lower labor turnover, the number of poor health resignations dropping from 8% to 2%.
2. It decreased the death rate of employees from approximately 35 to 10 per 10,000.
3. It decreased absences on account of illness from 4.6% to 2.3% in five years.
4. It lowered the incidence and severity of all types of disability and decreased payment of cash benefits 43% in eight years.

The future material prosperity of Alabama in large measure lies in industrial development. Governor Graves told me once that the splendidly organized State Department of Health was one vital factor in the successful campaign to locate the great Goodyear Rubber Company's southern branch in Gadsden. Dr. Lloyd Noland, medical director of the Tennessee Coal and Iron Company, standing with me on the roof of that company's fine hospital in Fairfield and pointing to the surrounding hills full of ore, said that his company's great plant had been established in Alabama because of three factors: abundant coal and iron, suitable water supply and a high quality of labor. The T. C. I. hospital has been one of the company's most important developments.

If progressive, far-seeing corporations, like oil, rubber and steel, believe that adequate medical service is vital to their welfare, what is the responsibility of the commonwealth to its nearly 3,000,000 citizens, its hundreds of thousands of school children, and its thousands of small businesses?

In a splendid address before you on November 17, 1930, Dr. J. N. Baker, Alabama's State Health Officer, stated that Alabama "possesses the best and most workable set-up of any state in this Union." The creator of this system (Dr. Jerome Cochran), Dr. Baker pointed out, "sought to accomplish three clear cut, major objectives:

"(1) To promote the advancement of scientific medicine throughout the medical profession of the state.

"(2) To provide a proper means for the regulation and supervision of the Medical Practice Act.

"(3) To furnish suitable leadership, direction and control for all public health activities within the state."

"The first objective is easy of solution for any scientific group whose jurisdiction is limited only to the membership of such group; but to attempt to graft on to such a scientific body activities of state-wide scope and having important legal bearings must, of necessity, increase the complexities of the machinery employed.

"Cochran displayed uncanny vision when, sixty years ago and just at the dawn of public health work, he boldly asserted that leadership in all public health activities should rightfully vest in organized medicine. Today this basic fact is coming to be more and more appreciated and such law-making bodies as have recognized and acted upon this principle have, almost without exception, given their states wise and efficient departments of health, while those which have not been so guided have reaped a harvest of inefficiency proportionate to their inability to grasp this simple, axiomatic truth.

"Cochran's deliberate and carefully thought out plan, therefore, was to graft upon the organized profession these two legal stems of vital importance both to the

4. The Value of Physical Examinations, National Safety News 31: 35, 1935.

profession and to the people of this state. The members of his own profession, when the plan was first presented to them, shuddered and demurred, fearing to assume so great a responsibility, but finally yielded to Cochran's superior judgment and wisdom. The legislature, upon its presentation and after careful scrutiny, eagerly adopted a measure which seemed to them so admirably to provide for their public health needs."

I am happy to quote these passages from Dr. Baker's paper. He and his staff are doing fine work and we rejoice that they have succeeded for the first time in realizing that ambition of all Alabama State Health Officers, the organization of a health department in every one of our sixty-seven counties. It will not be denied, I believe, that their continued progress and the progress of their successors will depend in very large measure upon the alert, intelligent understanding and sympathetic support of the medical profession at large.

So far I have tried to establish (1) that efficient medical service is worth money to any organization, corporate or political, and that big business has been quicker to appreciate the full significance of this than has the public; (2) that the future prosperity of this state will depend largely upon its industrial development in addition to its agricultural development and that progress in both depends vitally upon a high degree of public health; and (3) that Dr. Cochran was a prophet in teaching that public health should be dominated by the organized medical profession and that doctors must assume and meet that responsibility.

Granted that these three points have been made, may I submit some thoughts on their relation to the development of medical education in Alabama.

It is axiomatic that water will not rise higher than its source. To paraphrase, health conditions in general in Alabama will not rise higher than the source of authority in public health. That source, under the laws of Alabama, is the entire medical profession, organized in county medical societies and county boards of health, and functioning through the Medical Association of the State of Alabama and its Committee of Public Health.

The family doctor is the contact man with the great mass of laymen. They trust him. They will be led by him in matters of public health to a very large degree. It is self evident, therefore, that the future of public health, and all that public health means to agriculture, industry and commerce, will depend in great measure upon the right kind of support from the medical practitioners and the right kind of advice by them to the lay public.

Here is just where this truth bears a very vital relationship to the development of medical education in Alabama. There will be no argument over the assertion that young men and women born in and reared in Alabama will, on the whole, understand best their own people and their own problems; nor that medical education provided within the state will be so administered as to make its graduates most sensitive to the needs of public health and most conscious of their own responsibilities for its support. A modest start in that direction has been made in so far as our facilities permit and sound plans for further development have been laid.[5] The late Dr. Samuel W. Welch fully appreciated the vital interdependence of public health and medical education and fully approved our plans for the development of a four-year school. In fact, my coming to Alabama was largely the result of the influence of Dr. Welch, who had discussed the plans in detail and had volunteered his wholehearted support for their realization. I cannot help but feel that their realization might now have been accomplished had it not been for his untimely death and the unexpected and unprecedented depression. I might say in passing also that our plans were carefully reviewed by the late Dr. Richard Pearce, director of the Division of Medical Sciences of the Rockefeller Foundation, in these words:

*"The future of medicine lies in the State Universities. Alabama is well situated geographically for such a medical school. Your plans are sound. Every state which can afford it should have its own school. It is the biggest factor in solving the problem of medical care in rural districts."*[1]

No man in the world was better qualified to speak in this regard than was Dr. Pearce. His opinion and that of Dr. Welch seem conclusive.

Medicine is the only one of the older pro-

5. Public Health Lectures, Bull. School of Medicine, University of Alabama, 1937-38.

fessions in which a complete education is not provided within the state. In 1936, 236 natives of Alabama were enrolled in the medical schools of the United States. Of these, 190, including transfers from our local school, were enrolled outside the state. Of the 22,095 medical students enrolled last year in the United States, 9,497 or 43% were enrolled in the medical schools of Massachusetts, New York, Pennsylvania, Illinois and California.[6] The study of Southern history does not reveal that those states or their people have ever shown any great interest in solving the problems of the deep South.

The argument is sometimes made that outside doctors will be attracted into the state in sufficient numbers to supply all needs and that economic laws will provide all the doctors the state can use. In this connection may I submit a few figures? In 1914 there were 2,353 doctors in Alabama. In 1934 there were only 1,936, a decrease in twenty years of 597. In 1914 the population of Alabama was 2,229,158. In 1934 the state's population was 2,750,371, an increase of exactly 521,213. The ratio of doctors to population in Alabama in 1914 was 1 to 947. In 1934 the ratio was 1 to 1,420. Throughout the nation the ratio in 1936 was approximately 1 to 778.[7] During twenty years the ratio of doctors to population in Alabama has steadily decreased until this year it is approximately half that prevailing throughout the nation and today, on the basis of ratio of doctors to population, Alabama ranks exactly at the bottom of all states in the Union.

With limited funds, but with stout hearts and faith in the future, the faculty of your School of Medicine is maintaining high standards and laying a firm foundation for the complete medical school we believe will come. Since 1928 just 100% of our students, who have completed their first two years at the University with even passing grades, have been transferred to junior standing in thirty-three approved four-year medical schools, ranging from Harvard, Cornell, Johns Hopkins and Pennsylvania to California, from McGill to Washington University and Tulane. Only one transfer has failed of graduation in any of those schools, and he was not an Alabamian. This year, nine-elevenths of our sophomore class before Christmas were placed for next fall, several months earlier than usual. Before this publication the last two-elevenths were satisfactorily transferred. These statistics speak volumes for the quality of the students, the quality of the faculty and the quality of our standards. The process of transferring no longer occasions any worry.

The proportion of state students at the School of Medicine is constantly increasing. Of the ninty-three full-time and seven part-time students enrolled this year, 67% are natives of the state. Fifteen non-residents are graduates of higher institutions within the state, nine more come from surrounding southern states and only nine are non-residents from the North, East and West. Of thirty approved this last week for admission next fall, twenty-six are natives of the state. The quality of preparation of our students is constantly improving. Only four of the present forty-four sophomores lack degrees and only seven averaged less than 80% in their first year of medicine.

Even our small two-year School of Medical Sciences helps. I could cite, if time permitted, the cases of scores of fine young men and women, natives of this state, who could not have started at all except at the University where expenses are extremely low. Many are working their way through in part. Some of these young people are related to some of you here and you know their stories. If, in our small two-year school, the high standards outlined are maintained in spite of our handicaps, how long must we wait before we can complete a small, high grade four-year medical school to keep at home those fine native young men and women who are forced to go elsewhere every year, half of them never to return?

A recent declaration of 430 leading American doctors in favor of socialized medicine has aroused a great deal of comment throughout this nation. High school societies are debating the question. The lay press finds it a favorite topic of discussion. Suppose labor joins the demand? Shall the medical profession sit quietly and let the movement take its course? What will be the situation in Alabama twenty years

6. J. A. M. A. 109: 659-712 (Aug.) 1937.

7. Based on 165,163 physicians in the United States (Directory, A. M. A.) and population as estimated by the World's Almanac.

hence? Shall we follow the teachings of Cochran and Sanders and Welch? And, if we try to do so, shall we be more successful with our own young men and women educated at home according to our own ideals, or with native sons educated elsewhere, supplemented by the surplus from distant regions who cannot succeed there?

Let me add here that if there is any one criterion of admission which is being more rigidly enforced than any other at the University these days in selecting freshmen for the School of Medicine, it is the criterion of clean character, ethical ideals and keen sense of social responsibility. Scholarship and mental fitness are taken for granted, but those personal qualities also are considered essential, because upon them the future of medicine in Alabama depends almost entirely. The tragedy is that we cannot carry such students on to graduation and keep them here.

All too often the intangible values of a medical school in a community are overlooked. There is not time to elaborate this theme, but everyone knows that medical practice, institutional and private, is raised to a higher level in a medical center where teaching and research set the standards. For many reasons the medical profession and the public are better off with a medical school in their midst. The famous doctors, as a rule, are those connected with a medical school. The conclusion is obvious.

One more financial consideration: It costs each student about half as much each year to attend the Medical School at the University as it does to attend a medical school in any of the larger cities outside the state. At a most conservative estimate, approximately 200 Alabama students, who are now forced each year to go elsewhere, carry out of the state annually at least $200,000 of Alabama money. If your school had half that amount annually in addition to its present modest support, together with a teaching hospital affiliation in one of the larger cities of the state, it could maintain without difficulty a small high grade, four-year school of which Alabama would be proud, which would add to the prestige of the Alabama profession and which would enable our native sons and daughters to finish their medical education at home: and then they would remain at home.

In conclusion, from every point of view—public health, public welfare, industrial development, material prosperity, altruistic medical service, state pride, and professional self preservation—doctors and laymen alike should demand that Alabama provide funds to complete a four-year medical school as soon as possible.

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## THE TREATMENT OF TETANUS*

### AN ANALYSIS OF THIRTY-SIX CASES

By
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And
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In the past few years it has frequently been called to the attention of the medical staff of the Hillman Hospital that the mortality rate in tetanus has been considerably reduced. In this report we have analyzed all of the cases of tetanus treated in the hospital from July 1934 to November 1937, in an effort to determine the treatment employed. There were 36 cases treated with 14 deaths, giving a mortality of 38.9 per cent. That this is a reduction in the mortality experienced in previous years is evident when it is compared with cases treated between January 1, 1925 and December 31, 1931. There were 49 cases with 32 deaths for a mortality of 65 per cent. Although this series is small the mortality is sufficiently lower than other reported series to be worthy of note. Huntington, Thompson and Gordon[1] in an analysis of 642 cases collected from most of the large hospitals in New England found a mortality of 63 per cent. It is rather interesting to note in this report that they found very little if any reduction in mortality after the use of antitetanic serum as a therapeutic agent. Yodh[2] reported 438 cases treated in India with a mortality of 50.6 per cent. Klopp[3] reported the experience in the Episcopal

*Read before the Jefferson County Medical Society, January 1, 1938.

1. Huntington, R. W., Jr.; Thompson, W. R.; and Gordon, H. W.: The Treatment of Tetanus With Antitoxin, Annals of Surgery 105: 93 (Jan.) 1937.

2. Yodh, B. B.: Further Observations on the Treatment of Tetanus, British Medical Journal 1: 855 (April) 1937.

3. Klopp, J. W.: Tetanus, Experience in the Episcopal Hospital in the Past 30 Years, Annals of Surgery 104: 419 (Sept.) 1936.

Hospital in Philadelphia over a period of 30 years from 1905-1935 in which 56 cases were treated with a mortality of 72 per cent. Frederick Taylor[4] of Indianapolis reported 37 cases with a mortality of 54 per cent.

A survey of the material in this series is interesting. There were 6 white males, 5 white females, 21 colored males and 4 colored females. This ratio of 11 white patients to 25 colored is interesting when compared to the average hospital census of 6 white to 5 colored patients. It suggests that tetanus is more common among Negroes. This might be explained by the fact that Negroes treat most skin wounds with turpentine and a cotton rag. However, the care that has been given before hospitalization to many of the white patients on relief is not much better. The average age of the patients was 24.7 years, with extremes of 55 years and 4 years. In cases 20 years of age or older there were 7 deaths and 11 recoveries. In cases under 20 there were also 7 deaths and 11 recoveries. There were 6 cases under 10 years of age with 4 deaths. The portal of entry or initial lesion could be determined in 27 cases and was undetermined in 9. The location of the lesion did not definitely affect the mortality. There were 19 cases with lesions on the lower extremities with 7 deaths; 3 with lesions on the upper extremities with 1 death; 4 on the head with 1 death; and one case with the lesion on the body which was fatal. The average incubation period was 8.8 days. The extremes were 21 days and 1 day. The average incubation period in the fatal cases was 7.8 days and in the nonfatal cases 9.5 days. As far as these cases are concerned there does not seem to be sufficient difference in these figures to be of any prognostic significance.

Before beginning an analysis of the treatment one word should be said about prophylaxis. The experience in the World War has proven beyond doubt the value of prophylactic antitoxin. The profession is well aware that puncture wounds and wounds contaminated with foreign bodies are particularly susceptible to infection and is also conscious of the fact that very trivial and superficial wounds sometimes become infected. Two cases in this series developed tetanus after the prophylactic injection of combined serum had been given. In both cases the initial wound was unhealed. One case suffered a severe laceration of the forearm. There was profuse suppuration and slough of the skin flaps. The other case developed in a boy of 11 who suffered from hemophilia. Nine days after a laceration on his scalp which bled almost to exsanguination he was given a prophylactic dose of combined serum. Thirteen days later he developed tetanus. The case was fatal and at autopsy the scalp wound was found to be unhealed and pus was present beneath a crust which had formed on the surface. These two cases, although not conclusive, substantiate the belief that in badly infected wounds a prophylactic dose larger than 1500 units should be given and in cases where the infection persists, particularly when the wound has been contaminated with foreign bodies, a second prophylactic dose should be given in 10 to 14 days.

The treatment in these cases is best divided into four headings: Care of the initial lesion when present; neutralization of toxin; control of spasms; and general care and nutrition.

The initial wound when present should have prompt surgical attention and proper treatment instituted. If the local lesion is viewed as a source liberating a toxin which is carried to other susceptible tissues and fixed there up to the point of saturation, it can be seen why the obliteration of the focus should be considered an emergency in an effort to stop the supply before saturation of susceptible tissues occurs. The usual procedures are incision, débridement and removal of foreign bodies. The wound may be left open to the air or solutions which liberate oxygen applied. The treatment of the initial wound at the Hillman was not always as prompt as might be desired. Of the 27 cases in which the initial wound could be determined there were 23 in which the wound was unhealed or infected. Thirteen cases were incised, débridement was done on 2, a foreign body was removed from one and 7 had no surgical interference. Hydrogen peroxide was applied to six of the wounds and tetanus antitoxin was injected around 9.

The second phase of the treatment, neutralization of toxin, is based on the concept that antitoxin when introduced into the

4. Taylor, Frederick W.: Study of the Treatment in Acute Tetanus, J. A. M. A. 102: 895 (March) 1934.

body will neutralize any toxin that has not been fixed in the tissues and any new toxin that is being liberated from the initial wound. In this series all cases received some antitoxin. The average amount in the fatal cases was 80,500 units and in the non-fatal cases 152,700 units. This might seem to indicate that the larger amounts of antitoxin are more curative. However, these figures should be interpreted in view of the fact that the recovered cases were in the hospital for more days and it was possible to give them large amounts while the average amount in the fatal cases was reduced by cases which did not live long enough to receive several doses. Three cases which died within 24 hours after admission received 15,000, 40,000 and 1,500 units respectively. Two fatal cases which were in the hospital 5 and 6 days respectively and received 220,000 units each give some evidence that recovery is not entirely dependent on large amounts of antitoxin. However, one fatal case which was in the hospital 8 days and received only 41,000 might possibly have suffered from the small dose. The following are the amounts under 100,000 units which were given to non-fatal cases: 40,000, 90,000, 60,000, 80,000, 60,000 and 40,000 units.

Antitoxin was given intraspinally, intravenously, intramuscularly, and around the lesion in various combinations. In 15 cases it was given intraspinally with 8 deaths for a mortality rate of 53 per cent. There were 6 deaths in the 21 cases which did not receive intraspinal injection for a mortality of 28 per cent. There was no evidence that the antitoxin was given intraspinally to cases of unusual severity. The series is small but it does seem to suggest that the intraspinal administration of antitoxin is not desirable. Recognizing the harmful effect of any noise or stimulation of the nervous system in these cases, it seems logical to avoid putting any foreign body into the spinal fluid where it may act as a direct irritant to the central nervous system. Abel[5] in his brilliant experimental work done at Johns Hopkins concluded that antitoxin given intraspinally would be less effective in neutralizing toxin because the toxin is borne from the local wound by the blood and lymph.

Two of the fatal cases in the series were autopsied and the brain examined. Both had received antitoxin intraspinally. In one case the pathologist reported acute congestion of the brain. In the other the vessels in the region of the brain stem were reported to be congested and the fluid in this region reported to be cloudy but no comment on these findings was made in the pathological diagnosis. Thirty-one cases received antitoxin intravenously with 11 deaths for a mortality of 35 per cent, which is slightly below the mortality of the whole group. One case developed a severe reaction 30 minutes after antitoxin was administered intravenously and stopped breathing. He was revived successfully and recovered from his illness. Antitoxin was given intramuscularly or into the tissue in 31 cases. The value of antitoxin as a therapeutic measure has never been established as conclusively as its value in prophylaxis. The report[1] of Huntington et al of 642 cases, in which 72 patients received no antitoxin, with a mortality of 65.3 per cent, closely approximating the 63 per cent mortality for the whole group, is suggestive. However, it seems logical to give, during the first 4 to 6 days of treatment, a reasonably large dose of antitoxin (100,000-200,000 units) by a route that is not likely to produce harmful results, hoping that it will neutralize any unfixed or newly elaborated toxin.

Control of the tetanic spasm has become recognized as one of the most important factors in treatment. Death usually occurs during a convulsion and the repeated spasms are a great factor in weakening the vital forces of the patient. In analyzing this series one is struck with the heroic doses of various sedatives used in an effort to control the convulsions. Although there is no adequate control series available it is the opinion of the authors that the liberal use of sedatives has been a considerable factor in the reduction of the mortality. Several sedatives were used, often in combination, and it is impossible to give statistical evidence as to which were the most effective. However, the following notes found on the progress charts and in the nurses' bedside reports are helpful.

Sodium amytal was used in 33 cases. It

5. Abel, J. J.; Evans, E. A., Jr.; and Hampil, B.: Researches on Tetanus, Bulletin of The Johns Hopkins Hospital 59: 307 (Nov.) 1936.

was the most widely used and apparently the most effective. It was employed several times when other sedatives had failed and there are numerous notes that it was effective. It was used intravenously, intramuscularly, by mouth and by rectum. This availability by several routes is a distinct advantage. The usual adult dose was 6 to 9 grains by mouth or by rectum every 4 hours. The largest dose was 54 grains a day by mouth for 3 consecutive days to an adult female. A 13 year old female received 30 grains daily for 18 consecutive days. Both of these cases recovered. The usual intravenous and intramuscular dose was 7½ grains. The average daily dose in adults was about 25 grains by mouth. There is no set rule for the dose. It should be enough to relax or at least give the patient rest. It is a good plan to space the doses so that the patient never comes completely from under the influence of the drug and convulsions begin before the succeeding dose is given. Two cases showed untoward effects which may have been due to the drug. One case developed a vesicular eruption. The drug was stopped and chloral hydrate and sodium bromide used. The patient recovered. The second case was apparently recovering from the tetanus when he developed a psychosis. The psychiatrist who saw this case in consultation made a provisional diagnosis of drug psychosis and advised stopping all drugs. This was done but the case terminated fatally. This case was given an average dose of 22½ grains of sodium amytal intravenously daily for 5 days. Then this was stopped and chloral hydrate, 60 grains daily, given for 7 days. It is interesting to note that he received his sodium amytal intravenously which may have had some causative effect on the psychosis.

Chloral hydrate and sodium bromide, usually given in combination, was used in 11 cases and seemed the next most effective sedative. In one recovered case they were the only sedatives used. Morphine sulphate was used in 13 cases. It was not effective in controlling convulsions but did seem to give some relief from pain. Phenobarbital and phenobarbital sodium were used in 8 cases and had roughly the same effect as sodium amytal but was not as available. The elixir of phenobarbital was frequently used in children. Avertin was used in 6 cases. The dose in 2 cases was 100 mg. per kilogram, in 2 cases 70 mg. per kilogram, and in 2 cases it could not be determined from the record. In 2 cases the notes stated that it gave good relaxation and in one case it was ineffective. Avertin was used throughout the course of the illness in only one case. This case received 5 instillations and died 6 hours after the last. Codeine sulphate was used in 3 cases, all children. Magnesium sulphate, 20 cc. of a 10% solution, was given intravenously to 3 cases but it was used in conjunction with sodium amytal and its effectiveness could not be judged. Calcium gluconate was given to 3 cases in conjunction with other sedatives. The notes are not conclusive except in one case in which calcium gluconate and morphine were ineffective in controlling convulsions. Sodium amytal was later used effectively in this case. Nembutal and pentobarbital were used in one case each but their effectiveness could not be determined.

In general care of the patient, stress is placed on keeping him as free from unwarranted stimulus as possible. A darkened, quiet room is desirable. The severe muscular contractions of the tetanic spasms make it necessary for the patient to have a high caloric intake. The contraction of the jaw muscles often make it impossible to supply this by mouth and other routes must be used. In the Hillman Hospital the facilities for general care are not ideal. Frequently it was necessary to treat the patients in the general wards where they were subject to a great deal of noise. Twelve of the patients were fed by mouth alone. In 19 cases it was necessary to give intravenous or subcutaneous fluid. Six patients were fed by nasal tubes. Two of these cases had difficulty because of fluid collecting in the pharynx. In one case it is very likely that death was due to aspiration of vomitus. Although the nasal tube is a very satisfactory method for feeding patients and giving medication, there is always the possibility of overloading the stomach and having the food vomited during a convulsion.

To summarize the treatment as given at the Hillman, the patients received average hospital care under crowded conditions; the attention to the initial wound was not always prompt; moderately large doses of antitoxin were given; and large doses of sedatives, with sodium amytal the most

widely used. The one single factor which seemed to affect the mortality within the series was the intraspinal administration of antitoxin, and the effect was adverse.

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## THE UNDULANT FEVER PROBLEM

### A NEW AND PROMISING IDEA AS TO THE TREATMENT OF THE CHRONIC CASE

By
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Despite the great amount of scientific investigation of this infection, little progress has been made toward the solution of the undulant fever problem. As the facts established so far point to an alarming incidence of the disease without at all explaining many of its phases, this research has rather served to intensify the perplexity of the profession over the situation. Notwithstanding all of the uncertainty as to the bacteriology of the disease, the writer would call the attention of physicians to a promising plan of treatment for chronic cases, which he regards as entirely rational.

#### INTRODUCTION

In a day of laboratory medicine, naturally the recognition of a new infection will come only as scientific tests prove its occurrence; its treatment will be undertaken by the profession generally only as a clinical picture is presented and correlated with facts of diagnosis. As the bacterial tests are not uniformly dependable, and as the clinical picture of undulant fever is extremely varied, the establishment of a relationship between these factors has been attended by more than ordinary difficulty, so that progress in the mastery of undulant fever has been a slow and halting advance; today one can look back and discern periods of gain separated by lapses.

Colonel Sir David Bruce did his epoch-making research of this infection upon British soldiers stationed on the Island of Malta; these men suffered an acute and classical form of the disease. Under the circumstances that existed, the culturing of the organism direct from the bodies of the victims was feasible there, though the isolation of the germ is a most tedious process having only limited application to the problem today. In his time the agglutination test was just beginning to gain acceptance, so one finds Bruce, quite naturally, asserting his reliance upon the clinical picture for general purposes of diagnosis; i.e., rejecting the means which at a later time became the sole criterion of determination.

The first cases of undulant fever in this country were reported in 1924. These instances, rare at first, soon showed a rapidly increasing frequency. By use of the agglutination test these cases were carved out of a heterogeneous group of fevers that went under the designation of "typhoids." At that time there was no clear conception of the malady, only the picture handed down from the days of Bruce; and the limitations of the agglutination test in the disease were not then suspected. The result of this first investigation was the recognition of an intensely febrile form, probably an abortus variety, that is not exactly the same as the old-world or Malta fever.[1] The clinical picture of this recognized manifestation of undulant fever is fully described in Bulletin No. 158 of The National Institute of Health.

By 1935 a renewal of interest in the disease was evidenced in medical literature for then there appeared a number of articles calling attention to a chronic undulant fever. The difficulty of studying the chronic case was two-fold; first, the agglutination test, which had been so successfully used in establishing the presence of acute undulant fever in the United States, has never been found in these chronic cases excepting in very low titers (1-40; 1-80), and has been altogether absent in fifty per cent of suspected cases. Secondly, the clinical picture offered the profession was so variable in character as to seem incredible at first. This symptomatology was patched together from instances where acute undulant fever had passed into a chronic state; from cases of ailing persons who had suffered a severe attack of fever which on review seemed to have possibly been undulant; and from the manifestations of semi-invalids who gave definitely positive skin tests made with an undulant antigen.[2]

The skin test depends upon a peculiar sensitivity of the dermis. It is not thought that this diagnostic means is definitely spe-

1. Bancilhon, J.: Malta or Mediterranean, Internat. Clin. 2: 27th series, 1917.

2. Thames, E.: Chronic Undulant Fever: Pathologic Debility Often Resulting in Severe Nervous Disorders, Medical World 53: (Feb.-June) 1935.

cific for Brucellosis or that it always indicates a current infection in contradistinction to a post-infectional state of irritability of the tissue; still, it has been invaluable in furthering investigation of the chronic case. Without a clinical picture—in fact in the face of erroneous presumption as to the symptomatology—any test that materially aided naturally was more valued than one of doubtful specificity would ordinarily have been.

As this discussion will concern the question of an intestinal flora, it is pertinent to have in mind Zinsser's observation of a similar allergic skin reaction, that can be obtained on many people with a colon antigen, due presumably, as this author states, to sensitization from continuous absorption of colon toxins from the bowels.[3]

The Public Health Service is at present engaged in investigating the seriousness of chronic undulant fever. This work is under the direction of Alice Evans who was one of the first writers on the subject.[4] She is from time to time contributing reports of this work to the Surgeon General's Bulletin under the title, "Difficulties In The Diagnosis Of Chronic Brucellosis."[5] The importance of this study is considerable as it will authoritatively answer some questions concerning this infection that need exact determination. Already it has been ascertained that in a fair proportion of suspected cases the germ can be cultured from the blood by using an elaborate technique; from such patients it will be possible to draw a dependable clinical picture, whereas, heretofore, the symptomatology of chronic undulant fever has been only conjectural.

Reviewing the accumulated knowledge of undulant fever, it may be concluded that the disease is not at all rare, but that it is really an endemic infection; and instead of the acute attack representing the entire symptomatology of the disease, such illness is only an exacerbation of an insidious process—an exacerbation, alas! but from what source?

3. Zinsser, H.; and Bayne-Jones, S.: Textbook of Bacteriology, 7th ed. N. Y., D. Appleton-Century Co., Inc., 1934, pp. 558.

4. Evans, A. C.: Chronic Brucellosis, J. A. M. A. 103: 665 (Sept. 1) 1934.

5. U. S. Treasury Department, Public Health Reports, beginning in Vol. 52, No. 32 and continued from time to time.

## REGARDING THE NATURE OF CHRONIC UNDULANT FEVER

While at first the picture of chronic undulant fever was only an uncertain patchwork, to-day it is generally accepted as being of rather definite character though very variable. In nature the disease is a chronic intoxication that results in neurasthenia. The writer considers the many allergies manifested by these patients as but expressions of their neurosis.[6]

Obviously, acute undulant fever, when it does not terminate completely, assumes such a low grade of intensity, judging from its symptoms and immunological behavior, that it passes into a residual state. While this change is taking place, there arise within the system of the victim certain perversions of his bodily chemistry that are anything but physiological. Thus as one disease wanes, a constitutional disorder is being inaugurated—the two may overlap or even coexist. The original infectiousness becoming quiescent, the imposed chronic derangement coming to be dominant, the latter condition of the patient the writer (in a previous article on undulant fever) has denominated a *Status Metaboli Perversi Compensatorii.*[7]

This latter conception of disease is almost as far-reaching as the subject of *Chemical Pathology* expounded by Herter. No one appreciates more than the writer the difficulty of mastering the multitudinous phases of even physiological chemistry. These normal chemical processes of the body are quite beyond the ready comprehension of any individual; though it may be profitable to endeavor to gain a theoretical understanding of such processes along a particular line. Chronic acidosis is perhaps the best exponent of the disorder under discussion. Once this trouble is set up in the human economy, it can be said that the patient suffers a disturbance due to infection; but, in a sense, not infection itself.

The intoxication that the writer considers as constituting chronic undulant fever is, to be specific, an intestinal auto-intoxication caused by the undulant organism.

6. Thames, E.: Relationship of Allergies to Neurasthenia, Medical World (awaiting publication).

7. Thames, E.: Chronic Undulant Fever; More Critical Consideration of Neurasthenic Syndrome: Hyperthyroidism an Underlying Condition, J. M. A. Alabama 5: 54 (Aug.) 1935.

Under the heading *Chronic Auto-Intoxication* Forchheimer draws a seven-point symptom-complex which he considers as the common form of intestinal auto-intoxication and which he ascribes to the result of pancreatic digestion of nuclein and the putrefaction of intestinal albumin. Forchheimer continues: "That there are other rarer forms of chronic auto-intoxication is admitted."[8] Therefore, to correlate this idea of chronic undulant fever with medical literature, the writer's theory can be taken as pertaining to one of the *special forms.* The student of undulant fever is not concerned with all the syndromes accredited intestinal auto-intoxication. It is the neurasthenic complex that is under discussion and it is engendered according to the following theorization:

In these cases there is usually the history of an attack of acute undulant fever. During such attacks a certain number of patients are so profoundly affected by the neurotrophic toxemia of the disease that their nervous structures become sensitized to undulant toxin. As these acute attacks are ordinarily intestinal, it is only natural that after convalescence the infection lingers in the intestinal canal, just as typhoid germs may remain in an enteric fever patient after recovery. The bacteria remaining from an attack of acute undulant fever established an undulant flora—not necessarily to be thought of as pathological—and the products of its activity being absorbed, from time to time, reach the tissues as waves of toxemia. These, striking the sensitized nervous structures, cause them to be almost literally "set on fire"—this is the pathological part of the process. While the term flora is used, the growth may not be so luxurious for even considerable periods; also the flora may be just a limited one as might have its habitat in the appendix or the bile passages.

In just what a nervous breakdown consists is a most interesting medical question. While early students of neurasthenia definitely settled upon *morbid weakness* of the nervous system as the cause of that disease, they did not vouchsafe any reason for the occurrence of nervous breakdown—the writer is using these terms in the sense that a neurasthenia can exist for a long time, but "breakdown" is a striking let-go in neurologic functioning that comes in the course of a neurasthenia and is a conspicuously sudden turn of events. According to the foregoing hypothesis, "breakdown" will supervene when the process of sensitization of the nervous mechanism becomes so marked that an allergic reaction on its part can result in a disabling acute neurologic reversion—needless to say, the disability is perpetuated by rapidly recurring waves of toxemia.

Anyone familiar with chronic undulant fever knows how it always tends to recur. These recurrences, according to this theory, may be explained as due to migrations of the organisms from the intestinal canal into the tissues and organs of the body. It is probable that such excursions of the germs cause rises of temperature; whereas, waves of toxemia alone are likely to be but part of an afebrile Brucellosis. Repeated invasion of the bodily tissues from the intestines would add to the sensitivity of the nervous system, but might occasionally result in a spontaneous cure by setting up a real immunity. All physicians know that a severe attack of an infectious disease may have the effect, so to speak, of clearing the atmosphere for some time or even permanently.

This theory affords some approach to the question of the relationship of chronic undulant fever to certain other diseases. For illustration, the neurasthenia that may develop after an attack of Brill's disease or influenza is quite indistinguishable from that of chronic undulant fever. Either of these diseases may leave residual infections or intestinal floras capable of producing enough neurotrophic toxins to cause various vegetative disturbances, including many allergies. Confusion may be occasioned by the fact that the post-influenza state gives a positive reaction to a Brucella antigen. Possibly the allergy concerned in skin testing is of a general bacterial nature and therefore at times not sharply specific.

There is another explanation—and probably a better one—applicable to influenza; namely, undulant fever may begin as a respiratory affection, so that from the history of a case it may appear that the patient's troubles had their origin in an attack of "flu," when, in fact, they were never other than undulant in nature.

8. Forchheimer, F.: Prophylaxis and Treatment of Internal Diseases, 2nd ed., pp. 213.

That auto-intoxication from the intestines is due to bacteria may be concluded from observing the beneficial results of treatment of these patients with cultures of *B. acidophilus*. It has been argued that the whole idea of intestinal auto-intoxication is erroneous because many persons whose bowels do not move regularly may not be so affected; and those with actual diarrhea may suffer the most from it. The fallacy of such reasoning is that it assumes that everything is known concerning the physiology of the bowel; it is entirely possible that the irritation of the intestinal mucosa accompanying a diarrhea may favor the absorption of toxins. Possibly to control the effects of toxic intestinal germs one should "still-hunt" them, so to speak, being content to render them innocuous rather than to vainly seek their removal.

A sign of auto-intoxication that ever annoys some persons and which often comes to the notice of the physician—though the writer believes it is seldom rightly interpreted—is the red nose of the *intestinal patient*. Particularly in the past, this has been regarded as an indication of drinking, but there are many temperate individuals so affected. Seemingly this manifestation is more noticeable in women than in men, probably because of the fairer complexion of the former. Such patients are dyspeptics. By way of differentiation, the whiskey nose tends more often to be bulbous; that due to auto-intoxication to be pinched or cadaveric. This disfiguration is due to the dyspepsia. The condition is capable of affecting the nose since there is a regurgitant circulation through the veins between the stomach and the mouth and nose. Of course the stomach is similarly upset in both classes of persons, but overstimulation of the skin of the nose occurs particularly in drinking. The thin red nose observed in many chronic undulant fever patients has for some time caused the writer to associate that condition with auto-intoxication.

Facts supporting the idea of an undulant flora are:

Amoss and Poston were able to isolate the organisms from the stools of convalescent patients many days consecutively after their acute undulant fevers had ended.[9]

The undulant germ has frequently been cultured from the human gallbladder. Zinsser[10] states in his textbook of bacteriology that the organism may be found in the intestines of man and animals.

Other occurrences and circumstances from which such a flora may be inferred:

Brucella has been found in about fourteen varieties of animals; in some instances, the hosts do not appear to be ill because of the infection. The milk supply of the United States is so generally contaminated that any person may ingest these organisms daily. Infections of the respiratory and upper air passages are common and in such cases the intestinal canal naturally is exposed to infection. It has long been an accepted fact that in chronic continued instances of undulant fever the deep abdominal lymphatic glands become swollen. Infection is ordinarily by ingestion.

It is also suggestive that Brucella is best cultivated on liver infusion medium, as though the organism was accustomed to live in the presence of bile. Furthermore, under some circumstances the undulant organism becomes anerobic like intestinal bacteria generally.

The frequent occurrence of pyelitis during undulant fever indicates that there is some ready source for hemic infection—this consideration particularly obtains in children. Dissemination of the undulant organism is favored by the fact that it is a very tiny microbe and is non-flagellated.

### A TREATMENT APPLICABLE TO THE CHRONIC PATIENT

The president of a college once remarked: "If you tell me a thing is difficult of accomplishment, that is not an extraordinary statement for all life is beset by obstacles. Should you, however, convince me that the achievement of an undertaking is impossible, then I would desist." This bit of philosophy is applicable to the treatment of undulant fever.

While the writer has repeatedly obtained good results from their use and therefore does not subscribe to the general pessimism regarding the treatment of undulant fever with the vaccine and the serum, he is willing to admit that there are cases that do not respond to these agents, and that the disease probably will never be conquered with

9. Amoss, H. L.; and Poston, M. A.: Undulant (Malta) Fever; Isolation of Brucella Organism from Stools, J. A. M. A. 93: 170 (July 20) 1929.

10. Zinsser, H.; and Bayne-Jones, S., pp. 647.

them. Therefore any details of such therapy will be omitted in this paper. Though admittedly difficult, the chronic patient can be treated with more or less success by other means, for, as has been explained, the individual's peculiar difficulties arise from the operation of a chain of factors. One avenue of approach likely to give results in the treatment of the chronic case is the control of the element of intestinal intoxication.

The difficulty alluded to in treating these cases is because of the fact that they usually suffer from neurasthenia of a severe degree and not from any particular trouble in applying the plan of treatment which the writer advocates. Such patients are usually quite wretched; their bodily economies are wracked by several lines of perversions; and if untreated may pass into a condition of permanent semi-invalidism or that state recognized as *neurasthenia gravis*. On the other hand a spontaneous recovery may result, showing that after all there is in these patients a delicate balance between sickness and a state of well-being—hence the desirability of controlling every phase of their disorder.

The writer's plan of treatment is, in general, that which has for years been used successfully in intestinal auto-intoxication due to bacterial activity; i.e., it has to do with changing the intestinal flora from the putrefactive to the aciduric group of germs. Such change seemingly lessens or eliminates the absorption of the undulant toxins also. The desired altering of the flora can be accomplished by the administration of liquid culture of *Bacillus acidophilus* with sugar of milk; by feeding lactose with psyllium seed—the latter being used to give bulk to the intestinal contents; and by giving such inert substances as kaolin, aluminum hydroxide, charcoal, and even chalk or barium sulphate. By these means the general character of the stools is changed and they become non-odorous; the patient experiences improvement as to discomfort in the intestines; and betterment in his energy.

The action of kaolin is altogether physical; it absorbs gases and impurities; it precipitates bacteria; and by forming a protective coating it retards the absorption of toxins and soothes irritation of the mucosa of the bowels. Its action in precipitating bacteria is like that of aluminum hydroxide when used to purify reservoirs by sedimentation.

Incidentally, it is interesting to consider the dirt-eating habit at this juncture. For generations there have been in certain sections of the country natives who ate clay. These people seemingly suffer some dyscrasia arising from their intestinal tracts. Their practice is usually attributed to degeneracy; sometimes it is thought they eat clay because by doing so they obtain certain minerals much needed in their metabolic processes. This latter idea is not so convincing, for if the minerals were in the clay, traces of them would be in the drinking water also. Their idiosyncrasy is undoubtedly an expression of pica. Along this line it is explained these individuals have gnawing pain in their stomachs which is relieved by the ingestion of anything; such people are very poor; they do not always have sufficient food to satisfy this craving, so they resort to eating dirt. They are usually very pale, but this could be the result of their deficient diet; possibly the symptom exists because of a hookworm infection picked up with the dirt eaten. However, there may be remedial virtures in clay, and perhaps these wretched "children of nature," without any realization of it, "are wise beyond their day and generation."

Intestinal antiseptics are usually ineffective in controlling intestinal auto-intoxication, but for the past several years the writer has used creosote with excellent results in his chronic undulant fever patients who suffer from marked gastric symptoms. The drug is used in drop-doses emulsified with acacia and mixed with a small amount of ammonia and bicarbonate of soda. It is probable that its favorable effect is because of its direct action upon the gastric mucous membrane and not on account of any antisepsis.

Considerations contributing to the recovery of these cases are:

1. Regulation of the diet, which should be anallergic;[11] this is especially important in patients who manifest gastric or intestinal allergies. With patients on this form of diet it is sometimes necessary to feed

11. Smul, J. S.: Clinical Evidence of 50 So-Called Gastro-Intestinal Diseases Which Really Are Caused by Food Allergy, With Discussion of Their Treatment, Am. J. Digest. Dis. and Nutrition 2: 178 (May) 1935.

them oftener than three times a day to avoid a tendency to hypoglycemia.

2. Purgation makes these patients feel better, but such treatment is at best but symptomatic. There is always a limit to purging a patient; as many of these cases have a hemorrhoidal condition there may be this additional reason for circumspection in this direction. If such treatment is to be used, mild saline laxatives should be chosen.

3. Rest, particularly that taken after meals, is desirable. In neurasthenia there is a disorder of interchange of regulatory impulses between the vegetative and the higher levels of the nervous mechanism; as one is unable to directly influence the sympathetic system, it only remains to put the body at rest so that nature may bring all three levels into accord.

4. Bodily hygiene is important. Cold baths are beneficial as they are invigorating to the vegetative system. These patients are easily upset and should wear flannel underclothing in the winter and, with a view of preventing excessive sweating which is directly weakening, should dress as lightly as possible in the summer.

5. The writer is opposed to reliance upon tonics, except those that are true hematics.

6. Dicalcium phosphate can be used with advantage, being preferably given intermittently in two-week courses. For the tendency to chronic acidosis mild alkalies are rational treatment. Perhaps, an alkaline mineral water will best serve this indication. The excessive use of cooking soda and of other carbonates is harmful. These, too, are only symptomatic remedies. Disturbances of the thyroid play an important role in neurasthenia; a few cases are distinctly "hyperthyroids." For these the x-ray can be used carefully; the thyroid function is fairly compensated in the majority of neurasthenics; some cases need small doses of thyroid gland. Yeast is beneficial to some of these patients, but the writer considers its use as empirical.

7. The control which the physician exercises over the patient is an important consideration whenever the patient is neurasthenic. These patients really have no morale and are continually changing from one line of treatment to another, much to their detriment. Their physician should be thoroughly informed as to the difficulties of treating a case of chronic undulant fever, and should endeavor to gain the cooperation of the patient for a long siege; for instance, Forchheimer warns that treatment directed to changing the intestinal flora must be persevered in for six to twelve months—using kaolin the writer would expect some definite improvement within two weeks. The physician should be firm in his handling of his patient, though no one lacking patience or sympathy for a neurotic should attempt his treatment.

The word *promising* is used advisedly in the title of this paper, for while the writer's appraisal of the value of this line of treatment really warrants a stronger expression, still, after controlling intestinal intoxication, the outcome of the case may depend upon preventing the re-establishment of a vicious cycle. Ultimate triumph may come either by dint of perseverance or perhaps from fortuitous circumstances. Of course the serum and the vaccine can be resorted to from time to time in the hope of establishing a curative immunity.

### CONCLUSION

The writer thinks that the profession should actively enter upon the treatment of this chronic disease. By combating the intestinal intoxication in these patients, the causative chain of their malady can be broken and a satisfactory cure may follow. If the profession will write the history of undulant fever from this stage, substituting its mass observation for bacterial standards, conclusions more definite, even if a little empirical, may be established.

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## SOME THINGS ABOUT THE EYE OF INTEREST TO THE GENERAL PHYSICIAN*

By
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During the time that I have been engaged in the practice of ophthalmology, I have often felt that the general physician should know more about some of the abnormal conditions of the eye and the means employed for their correction. The general physician is usually the first to be consulted, and it is very important that he should

*Read before the Northwestern Division of the Association, Decatur, June 17, 1937.

recognize the symptoms produced by these abnormal eye conditions and take proper steps to have them corrected.

There has been very little in the literature on this subject, because it is considered too elementary for the ophthalmological journals, and is not spectacular enough for the ophthalmologist to present to a meeting of this kind. However, I feel that there is a distinct need for more information on the subject.

When we remember that the only function of the eyes is the very important one of seeing and that when the eyes are performing this function under a handicap of extra-ocular muscle imbalance, or refractive error, it is not surprising that many and varied eye symptoms develop.

In order for the eyes to see with perfect comfort and clearness, the extra-ocular muscles must have the proper balance and the refractive error must not be too great.

There are very few perfect eyes. Most eyes have some degree of far-sightedness (hyperopia), near-sightedness (myopia), or astigmatism. Astigmatism may be either far-sighted or near-sighted and exist alone or in combination with far-sightedness or near-sightedness. Eyes that have refractive errors and still have normal vision secure it by accommodation, a function performed by the action of the ciliary muscle on the lens in such manner as to change the convexity of the lens to the proper degree to focus the rays of light in a point on the retina. Small refractive errors may be overcome by accommodation for many years without causing any symptoms of eye strain; however, some of the bad cases of eye strain are caused by small refractive errors in certain individuals. Some of the higher refractive errors cause a marked reduction in the visual acuity, but do not cause any symptoms of eye strain, because the refractive error is too great to be overcome by accommodation, and the ciliary muscle is not tired out by trying to overcome this high error.

The eyes of the human are designed to work together. Thus, with both eyes looking at an object, each eye sees an image of its own, but we do not see double, because the images of the two eyes are fused into one. In order to have fusion or binocular single vision with comfort, the eyes must not only be held in straight alignment with each other, but there must be a proper muscle balance between the two eyes. If this condition does not exist, there will be a tendency of one eye to deviate in its relation to the other eye, thus causing symptoms of eye strain because of the additional work imposed on the muscles in keeping the eyes straight by overcoming this tendency of the eyes to deviate. We also have a muscle imbalance that has developed to such a degree that, instead of there being a tendency to deviate, there is an actual manifest deviation of one eye so that it is apparent to all that a strabismus exists. This will be considered later.

The most common symptoms of eye strain are the following: Headaches, eye ache, photophobia, blurring or running together of print, nervousness, pain in back of neck, itching, burning and tearing of the eyes. Usually these symptoms accompany or follow the use of the eyes for near work, such as reading, sewing, etc., but may be complained of as a result of going to the movies or driving automobiles. However, some patients with severe headaches have never thought that their eyes were the cause of their trouble and are greatly surprised and very grateful when the glasses prescribed completely relieve their pain. I have had many patients of this kind who, because of severe headaches, have been to excellent physicians and have had a most thorough examination, including spinal puncture, without the physician or patient suspecting that the pain was due to the eyes. Patients who are wearing glasses may have any of the above symptoms of eye strain if the glasses are not the proper ones for their eyes.

A thorough examination of the eyes consists of the following: Testing the visual acuity for both distance and near, inspecting the eyes and lids for external disease, examining with direct light the cornea, anterior chamber, iris and pupil, testing the extra-ocular muscle balance on the phorometer, testing the visual fields roughly with the hand method and testing the tension of each eye. The fundi are then examined with an ophthalmoscope through the undilated pupils, noting the condition of the lens, vitreous, optic nerve and blood vessels and the macula.

From the information obtained by the above examinations you know if the case

should be refracted or if any disease condition found should be treated first, or some special examination made. If it is found that a refraction is needed, or a more thorough examination of the fundi desired, the proper cycloplegic is selected and used in the eyes. In children up to about 15 years of age, atropine 1% dropped into the eyes three times a day for three days is ordered. Patients over 15 or 16 years of age can usually be satisfactorily refracted with homatropine 2% dropped into the eyes every 15 minutes for five times. When the proper cycloplegia has been obtained, the eyes are refracted and the true refractive error accurately measured and recorded. A thorough ophthalmoscopic examination is then made through the widely dilated pupils. The normal fundus offers a beautiful picture with the optic disc standing out prominently in the back part of the eye and the central artery and vein emerging from its center and branching out over the fundus. The macula or point of acute vision is at the exact posterior pole of the eye and near the optic nerve. As the fundus is the only place in the body where visceral blood vessels can be actually seen, much information can be obtained from them as they are an accurate index to the condition of other visceral vessels. Thus if you find early sclerotic changes in the vessels of the fundus you know that you have the same changes in the vessels of the brain, kidneys and other viscera. The condition of the optic disc gives us valuable information as to the presence or absence of increased intracranial pressure. Increased intracranial pressure usually causes an edma and swelling of the optic disc, which is known as choked disc, and many times this is the first and only sign of brain tumor or other intracranial lesions. Bright's disease and diabetes often give characteristic signs in the fundi, late in the disease. Retinal hemorrhage, exudate and edema are often found as manifestations of some systemic disease. Syphilis may cause a characteristic choroiditis, as well as neuritis of the optic nerve and many other conditions. With the pupils widely dilated almost the entire lens can be seen and examined. Most cataracts start with spoke-like opacities in the periphery of the lens and these can be seen only when the pupil is dilated.

With the information obtained from these examinations the ophthalmologist is in a position to treat or advise with the patient's physician as to the treatment of any disease condition found, and to prescribe the proper glasses which will relieve the patient's symptoms. If there is a troublesome muscle imbalance, this is corrected by exercises if the imbalance is horizontal or by prism ground in the lenses of his glasses if the imbalance is vertical.

I am asked almost every day if it is necessary to put drops into the eyes in order to examine them for glasses. My answer to this question is "yes," and I explain that the drops put the muscle of accommodation completely at rest and thereby renders the eye helpless in focusing on test letters 20 feet away. With the eye in this condition, the exact combination of lenses must be placed before the eye in order to obtain the best visual acuity, without any aid from the ciliary muscle. In this way and this way alone can one be certain that he has accurately measured the true refraction of the eye. Some ophthalmologists do not use a cycloplegic on patients 40 to 50 years and older, but in my experience of refracting these older patients, first without drops and then with drops, I have often found that there is quite a difference in the result obtained, especially as to the strength and axis of the cylinder needed to correct the astigmatism. Therefore, unless it is contraindicated I use drops in all patients regardless of age. By doing this I am certain of the correctness of my refraction, and am able to give the patient the thorough examination of the fundi to which he is entitled. Opticians continually spread word to the public that the use of drops is not necessary. This, of course, is because the law does not permit opticians to use drugs. Many people, some of whom are physicians, go to opticians for glasses just like many women still have midwives for deliveries. Both are taking great risks by entrusting their eyes and their lives to persons who are not physicians and who are not capable of recognizing abnormal or disease condition, and many eyes and lives are lost because of their practice.

Actual ocular deviations or squints, previously referred to, are of two kinds, paralytic and nonparalytic. In paralytic cases the deviation is due to loss of function of the muscles involved. In nonparalytic cases

the deviation is due to anomalies of the powers of convergence and divergence. Nonparalytic or concomitant strabismus is the type of ocular deviation that can be corrected by operation. It is distinguished from the paralytic type by presenting a normal range of movement of each eye, and the same amount of deviation in all directions of gaze, while in the paralytic type the limitation of movement of the eye is present only in the field of action of the paralyzed muscle.

Concomitant strabismus is most often nonocular, with one eye fixing and the other eye constantly deviating. More rarely it is alternating, with first one eye and then the other fixing and always the nonfixing eye deviating. According to the direction of the deviation, we have two main groups: (1) convergent strabismus, when one eye deviates inward; and (2) divergent strabismus, when one eye deviates outward.

Convergent strabismus is much more common than divergent strabismus and usually develops between the first and fourth year of life, at the time when the child begins using its accommodation for seeing near objects. At first the deviation is usually periodic, being noticeable only at times, or being much worse at sometimes than at others. Later on it becames constant. The mother usually attributes its development to some sickness or accident the child has had, but this is not the cause and is only incidental, or at most an exciting cause. The underlying causes are:

(1) High refractive error, usually hyperopic in character.
(2) Difference in the relative strength of convergence and divergence.
(3) Defective fusion faculty.

It is probable that most cases of convergent strabismus are caused by a combination of these factors, acting in the following manner: Because of the hyperopia, a great amount of accommodation is necessary to see near objects, and as accommodation and convergence are closely associated acts, the child, as he increases his accommodation, increases his convergence, and if there is defective fusion faculty, one eye will turn inward.

Divergent strabismus usually begins in youth or early adult life, and is most often associated with myopia, or the loss of vision in one eye, the nonfixing or defective eye turning outward. In myopia very little accommodation is used and therefore there is little stimulus to convergence. The eyes assume a position of rest, namely of divergence. The same is true when the vision of one eye is lost.

The family physician is usually consulted and he often advises that nothing be done about the strabismus, as the child will probably outgrow it. If every physician knew that when he gives such advice nine times out of ten he is sentencing the child to loss of all useful vision in the deviating eye, he would never be guilty of it again. Please remember that we are not born with good vision but develop it by using our eyes, and, further, that if useful vision is ever obtained it must be before the age or six or seven years, since the retina becomes fully developed at that time and is not capable of further development. An eye that deviates is never used and, therefore, never develops useful vision, a condition knowns as *amblyopia ex anopsia*, or blindness from nonuse. This can be prevented by proper treatment if begun soon enough. All physicians should advise patients with strabismus to go to a competent ophthalmologist as soon as the strabismus is noticed, where proper treatment may be given to develop vision in the deviating eye, proper glasses prescribed and, if necessary, an operation performed later on.

The three operative procedures which I use are:

1. Recession, when the muscle is cut loose from its insertion on the eyeball and reattached farther back on the sclera, thus lengthening and weakening the action of that muscle.

2. Resection, when the muscle is cut loose from its insertion on the eyeball, a portion of the muscle is excised and the cut end of the muscle reattached at its original insertion, thus shortening and strengthening the action of the muscle.

3. Tonotomy, when the muscle is cut loose from its insertion on the eyeball and is not reattached to the globe. I do this operation only on the external rectus muscle and never on the internal rectus. One, or a combination of these operations, is used on the muscles of one or both eyes, as the amount and kind of deviation warrants.

# THE JOURNAL

OF THE

**Medical Association of the State of Alabama**

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue ..... Montgomery, Ala.

Subscription Price ..... $3.00 Per Year

May 1938


## THE MOBILE MEETING

Nearly all sections of the State were represented at the annual meeting of the Association held in Mobile, April 19-21. Characteristic of the people of Alabama's "Port City," the Mobile County Medical Society extended every courtesy to make the session a notable one.

Dr. Seale Harris, Sr., of Birmingham, was elected President, succeeding Dr. E. S. Sledge, of Mobile. Dr. R. C. Stewart, Sylacauga, was chosen Vice-President of the Northeastern Division, an office held for eight years by Dr. W. M. Salter, of Anniston. Dr. J. U. Ray, Woodstock, Treasurer of the Association since 1915, was named to succeed himself. Dr. M. S. Davie, of Dothan, and Dr. Fred W. Wilkerson, Montgomery, were reelected to membership on the State Board of Censors.

Counsellors were chosen as follows: From the Second Congressional District—Drs. M. H. Hagood and F. W. Pickell, Brewton, and Brannon Hubbard, Montgomery; third—F. R. B. Coggin, Waverly; fourth—Jerre Watson, Anniston; fifth—J. J. Walls, Alexander City; sixth—Charles Abbott, Tuscaloosa; seventh—Merle Smith, Parrish, J. G. Daves, Cullman, and R. L. Hill, Winfield; eight—J. F. Huey, Falkville, H. C. McCullough, Town Creek, and H. M. Simpson, Florence; ninth—E. M. Mason and C. O. King, Birmingham, and W. S. Rountree, Wylam.

## MEDICAL COOPERATION IN REHABILITATION

### AN IMPORTANT ACTION OF THE ASSOCIATION

The subjoined amendments to the ordinance governing contract practice, adopted by the Association in annual session, Mobile, April 21, are of such moment that, through this medium, they are being called to the attention of the profession throughout the State. The Association's action followed upon the receipt of these resolutions from the Wilcox County Medical Society (similar ones having been laid before the Association by the Society in Coffee):

Whereas, The Farm Security Administration has for some months past requested that the Wilcox County Medical Society present some plan acceptable to the Society, the Administration and to their clients for rendering medical aid to the clients of the Farm Security Administration; and

Whereas, All plans so far proposed by the Wilcox County Medical Society, as well as other county societies, have been found unethical or unworkable, and, desiring to uphold the high standard of medical ethics; and also to render this service to the clients of the Farm Security Administration, the Wilcox County Medical Society requests, urges and insists that The Medical Association of the State of Alabama, take a definite stand and adopt some ethical state-wide plan, at this meeting; therefore be it

Resolved, That we request the State Board of Censors to recommend, for adoption at this meeting, a definite proposal, state-wide in application, which will meet the needs of the clients of the Farm Security Administration and, at the same time, allow all ethical physicians to participate.

The State Board of Censors, in reporting its recommendations to the Association, said, in part:

Appeal is made to this Association to take such action as may be indicated, in order that members of county medical societies may enter into certain contractual relations to provide medical care for substandard groups of the rural population, selected, sponsored, and, in part at least, financed by the Farm Security Administration of the Federal Government. The present effort on the Federal Government's part to extend a helping and educative hand, looking to the uplifting of a large and by no means negligible segment of our low-income rural population, should be viewed in a sympathetic and cooperative manner by every thinking citizen and by all business and professional groups. It would appear to be a hopeful omen for the future of this Association to have presented to it such a cooperative attitude by the complete membership of county medical societies, working in unison and harmony and struggling to find an ethical solution for a new sociologic problem now confronting the rural



*Seale Harris*

President Of The Association

1938 - 1939

physicians throughout this State. Heretofore, questions brought before this Board and this Association pertaining to ethics have dealt largely with *restrictive measures* to be placed upon the individual member; in these resolutions we witness an appeal being made in the name of county medical societies, whereby all members, collectively, are to unite in working out a plan designed to meet their own local needs and which they feel should make for a better medical service, as well as improving the economic security of their members. To attain such an end and to obviate the pitfalls of unethical practices, an appeal is now being made to this Association for guidance and direction. There are now more than 10,000 such families, widely scattered throughout the State, and with each family averaging a fraction over six members.

In January of this year, this Board, at a called meeting, after receiving a report from the Public Relations Committee gave expression to certain broad principles which were furnished county medical societies and published in the Journal of the Association. In these, purposely, no effort was made to deal explicitly or in minute detail with the various phases of a problem, which, because of local conditions, might better be left to the local profession. The Board here reiterates not only this view but its former expression of confidence in the membership of county medical societies and in their ability and integrity to deal fairly and ethically with their own particular problems. Inasmuch, however, as the problem now presenting is state-wide in scope, and therefore calls for the setting up of certain ethical criteria and standards for the guidance of the local profession of the several counties, the Board submits the following for your consideration and action:

1. Amend Subsection 6 of Section 1 of the present ordinance governing contract practice as follows:

To practice in a hospital with which contracts are made by a railway, mining, manufacturing, commercial, or public service company, corporation or establishment, or by a governmental agency, approved by the county medical society and by the State Board of Censors of this Association, for the care of their own sick and wounded, but not for the salaried officials of such companies or agencies and their families, provided such hospital maintains in such contracts a minimum rate charge commensurate with the acceptable standards of cost for hospital service.

2. Add to Section 1, Subsection 10:

To perform medical and surgical service for certain groups of Alabama citizens and their families who, because of their low economic and financial status, are receiving government aid for purposes of rehabilitation.

All contracts permitted under this subsection and made with a governmental agency shall, over and above the provisions set forth in other sections of this ordinance, include the following:

(a) Approval of any plan to first be given by the medical society of the county in which it is to operate and also by the State Board of Censors of the Medical Association of the State of Alabama.

(b) Participation in such plan by all members of the county medical society desiring to do so.

(c) Regulation and censorship by the board of censors of the county medical society of all medical phases of the program, including charges, fee schedules and the adjudication of differences arising between patient and physician.

(d) Preservation of the principles of free choice of physician and of the physician-patient relationship.

3. Amend Section 2 to read as follows:

*Except as set forth in Subsections* 6 *and* 10 *of Section* 1, a physician shall not, without violating the ethics of the profession, contract to render the following service:

Subsection 1. To perform medical or surgical service for private individuals, groups of individuals, lists of individuals, or for any society, lodge, club, or in what is commonly denominated a list hospital, or a hospital which secures its patients by unfair competition or unfair methods.

Subsection 2. To perform medical or surgical service in a hospital or clinic with hospital service which does not conform to the ordinance of this Association now regulating group hospital insurance or which may hereafter be adopted by this Association.

4. Amend Subsection 3 of Section 2 to read as follows:

To perform medical and surgical service in a hospital or clinic that for a weekly, monthly, quarterly or annual stipend or stipend collected at other intervals, agrees to provide hospital service for individuals or groups of individuals, except in a hospital with which contracts are made by railway, mining, manufacturing, or public service companies, or by a governmental agency, approved by the county medical society and by the State Board of Censors of this Association, for the care of their own sick and wounded.

5. Amend Section 4 as it now stands by substituting therefor the following:

Section 4. That all contracts allowed under this ordinance shall be made with the proper officials of the company, corporation or agency entering into such contract and compensation for professional or hospital services shall be paid direct from the treasury of the company, corporation, or agency concerned.

The Association adopted the recommendations of the Board, thus amending the ordinance governing contract practice in the manner indicated.

The report of the Board will be published in its entirety in an early issue of the Journal.

## VOMITING OF PREGNANCY

Reid and Teel[1] state that at the Boston Lying-In Hospital abnormal vomiting of pregnancy is encountered in about 1 in 400 deliveries. The authors go on to discuss their treatment of the vomiting of early pregnancy. They have evolved a medical regime which since 1933 has resulted in few failures and no deaths. They are inclined to consider the vomiting of late pregnancy as a separate disease.

The Boston investigators hold that the cause of the vomiting of early pregnancy is unknown and that "the pathologic lesions are those of starvation, resulting from sustained loss of body fluids, proteins, minerals, chlorides, carbohydrates and vitamins." The authors arbitrarily divide the condition into three classifications as follows: "mild (morning sickness); no significant interference with nutrition. Moderately severe; during from 1 to 4 weeks. Severe and neglected; duration over 4 weeks."

In the treatment of the moderately severe and severe cases Reid and Teel insist that "the patient must be hospitalized and that complete physical and neurologic examinations must be performed." They advise that the patient be isolated from all friends and relatives, that "measures are taken for the adjustment of mental problems which seem to be contributory factors, that is, illegitimacy, determination to be aborted or problems concerning husband and family." Sedatives, usually phenobarbital, bromides, or pentobarbital, are given in sufficient quantity to cause cessation of vomiting and to induce sleep. Constipation is treated largely by enemas. Fluid and sodium chloride balance are restored and acidosis is corrected by giving normal saline by hypodermoclysis and 5 or 10 per cent glucose intravenously by constant drip. "A diet rich in protein, carbohydrate and vitamins, supplemented by concentrated sources of vitamins $B_1$, C and G in the form of brewer's yeast concentrate, ascorbic acid and liver extract given intramuscularly" is used to control the starvation, the polyneuritis and other results of food deficiency. Often it is necessary to resort to the duodenal tube and the authors say that "with the aid of the duodenal tube they may be fed." In regard to terminating the pregnancy we are informed that "we believe that immediate abortion is not indicated, but is best postponed for two weeks or more until medical treatment has restored the patient to a proper state of nutrition. If after this preliminary preparation therapeutic abortion is still to be considered, because of persistent polyneuritis, it may be much more safely performed."

McGowan, Baker, Torrie and Lees[2] have recently reported that "roentgenologic studies were made of the duodenum in two women suffering from the vomiting of pregnancy. A spasm of the second portion of the duodenum was noted in each case. This was readily relaxed by inhalation of amyl nitrite. Glyceryl trinitrate 1/100 grain under the tongue three times a day before or after meals has been used for the control of vomiting in twelve cases, with consistently good results.

"The vomiting of pregnancy sometimes is associated with a spasm of the second portion of the duodenum with probably a decrease in tone of the pylorus and stomach. Inhalation of amyl nitrite relaxes the duodenal spasm, produces proper emptying of the duodenum into the jejunum and restores gastric and pyloric tone."

"Glyceryl trinitrate satisfactorily controls a certain number of cases of vomiting of pregnancy." The work of McGowan and his collaborators is so far based upon too small a number of cases, but their methods will doubtless be repeated by other observers.

The treatment of the nausea of pregnancy has been steadily improving for a long time and this condition is both less frequent and less severe than was formerly the case. But it still confronts us and the following paragraph from Reid and Teel can well be borne in mind by all obstetricians. "It is our belief that indiscriminate use of the term 'neurotic vomiting' has been productive of some confusion and harm. To be sure, psychic disturbances are among the most important of a large group of extrinsic factors which aggravate the disease. However, there can be no doubt that many phy-

1. Reid, Duncan E. and Teel, Harold M.: The Treatment of the Vomiting of Early Pregnancy. New England J. of Medicine 218: 109 (Jan. 20) 1938.

2. McGowan, John M.; Baker, J. O.; Torrie, Arthur M.; and Lees, John: Vomiting of Pregnancy. J. A. M. A. 110: 498 (Feb. 12) 1938.

sicians have been prone to dismiss vomiting of pregnancy as a neurotic disturbance, without adequate treatment. We must emphasize that each patient with hyperemesis, if treatment is neglected, has a potentially dangerous or even fatal disease."

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# THE ASSOCIATION FORUM

*(Under this heading will appear, from time to time, as occasion may arise, contributions having a direct bearing on the general policies, functions and interests of the Association. Articles submitted should be of an impersonal nature.)*

## WHAT SIGNIFICANCE HAS ALABAMA'S DECLINING MEDICAL POPULATION?

By
J. N. Baker, M. D.
State Health Officer
Montgomery, Ala.

The authors of the statement on health care recently submitted to President Roosevelt found after their nation-wide survey that the 165,000 physicians now in active practice in the United States are numerically adequate to provide proper medical service to the country's approximately 130,000,000 people. But, these authors say in the same breath, a large proportion of the country's population is suffering because adequate medical care is not available.

Behind that *but* is a situation of tremendous seriousness to the American people. To the people of Alabama it seems vitally significant. To quote from this statement:

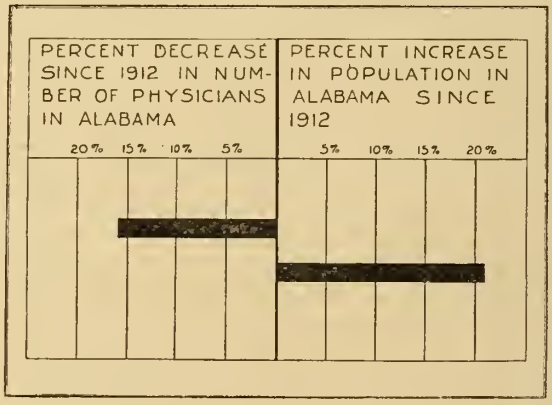
> "Young, well trained men turn to urban centers to begin practice where professional and economic opportunities are greatest because of hospital facilities and higher average income of the people, despite the fact that many of these centers already have an adequate, or more than adequate, number of physicians. Many rural areas, small cities and whole states are undersupplied with physicians. More recognition of the uneven distribution of practitioners will not solve the problem; practice in the underprivileged areas must be made attractive from both a professional and economic viewpoint before the young physician can be expected to settle in these areas where his services are most acutely needed."

The report of course referred to the United States as a whole. But how true a picture it gives of Alabama.

Although it is undoubtedly true, as the report points out, that "more recognition of the uneven distribution of practitioners will not solve the problem," such recognition does have the effect of clearing the atmosphere. Doctors know that recovery usually begins with diagnosis. Let us do a little diagnostic work, using not the x-ray or the stethoscope of general medical practice, but some revealing facts and figures.

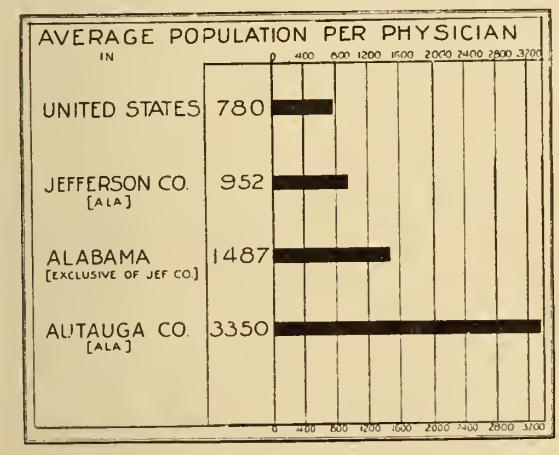
According to an analysis made by the Secretary of our Association, as of March 1, 1938:

For the State as a whole, there is one physician for each 1,345 of the population. However, if the State's largest county, Jefferson, which includes less than 18% of the State's population but has 24% of its doctors, be excluded from consideration, we find that the people of the other 66 counties have only 1/1,487th of a doctor each. Things were different, much different, a



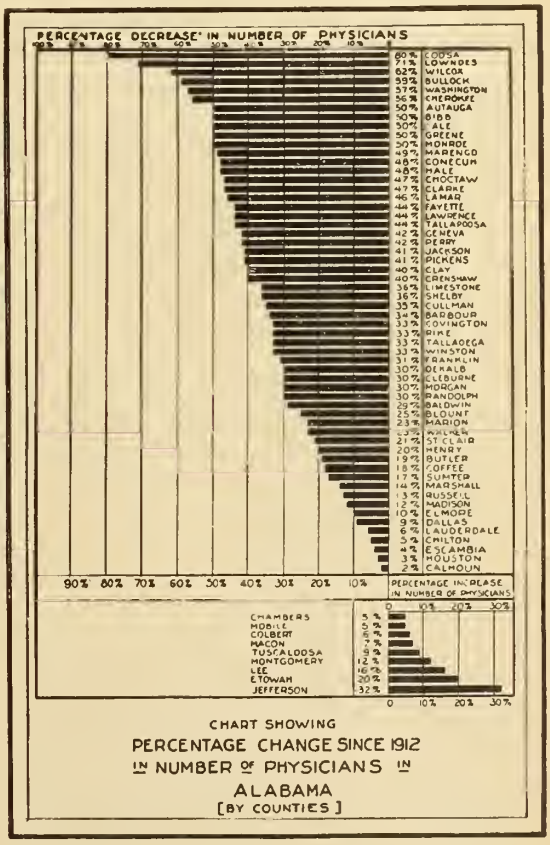

quarter of a century ago. Then the medical needs of the State as a whole were served by the same number of physicians, on the basis of population, as is the case of the one county of Jefferson at present. Even if the comparatively happy condition of 25 years ago with a ratio of one physician to every 952 persons prevailed today, the number of men, women and children served by the average Alabama doctor would still be 18 per cent larger than the 780 served by the average physician now practicing in the United States as a whole. The average Alabama physician, outside Jefferson County, is serving nearly twice as many as the national average. In one Alabama County

(Autauga), six physicians are serving 20,098 people, an average of approximately 3,350 each. This is more than three and one-half times the average for Jefferson, Alabama's largest and most highly favored county, more than four and one-quarter the average for the United States as a whole, and about two and one-quarter times the average for the State of Alabama as a whole outside of Jefferson County.



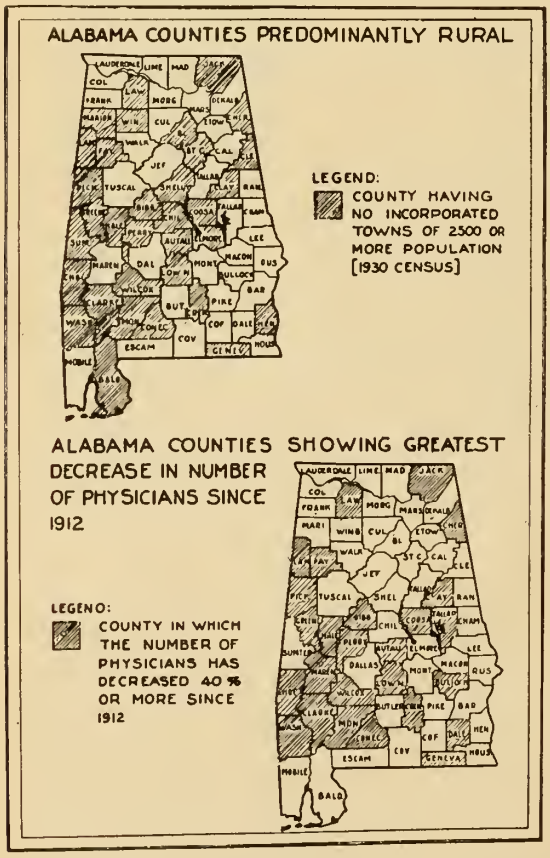

As may be gathered from what has already been said, the medical profession, which has been making such great progress in the conquest of disease during the past 25 years, has nevertheless lost ground numerically. In spite of an increase of approximately half a million, or about 21 per cent, in the State's population, accompanied by higher living standards, and a greater appreciation of the importance of proper medical care as a factor in the general well-being of the community, there has been a decrease of nearly 16 per cent in the number of physicians providing this care. Alabama now has only 1,887 physicians as compared with 2,245 in 1912. The present total includes 67 full-time county health officers, doing no general practice, of which there were none in 1912. There are thus 425 fewer physicians engaged in private practice than a quarter of a century ago.

This decrease has not been divided equally among all the counties by any means. In some it has been so slight as to be hardly noticeable. In others it has been so great as to bring the people face to face with the serious problem of a totally inadequate number of doctors, which must result in impaired health service and inevitably poorer health conditions. The communities that have suffered the greatest losses in the number of physicians are those situated in the rural sections. Even the briefest of surveys emphasize that in Alabama especially "young, well trained men turn to urban centers . . . despite the fact that many of these centers already have an adequate, or more than adequate, number of physicians," and that "many rural areas . . . are undersupplied with physicians."

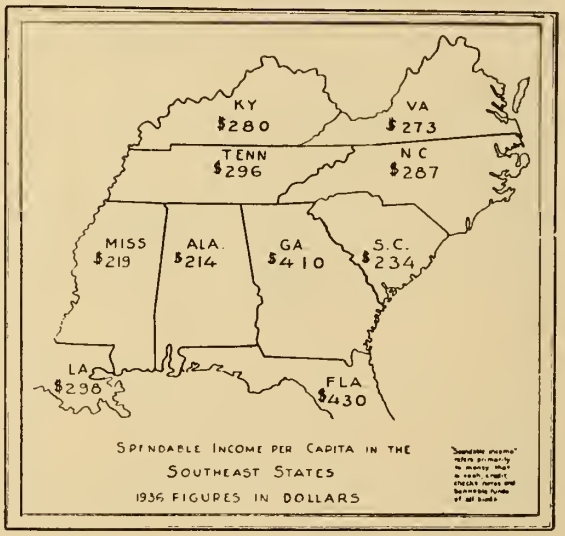



Only nine counties—Jefferson, Chambers, Colbert, Etowah, Lee, Macon, Mobile, Montgomery and Tuscaloosa—have more doctors today than they had in 1912. Of the increase of 143 doctors for all of these nine counties, 104, or more than 72 per cent, are to be found in Jefferson County alone, by far the most highly urban county in the State, with only slightly more than 28 per cent of its total population classed as rural. Of the remaining eight counties showing gains, four—Chambers, Colbert, Lee, and Macon—gained not more than three physicians each during the 25-year period. Etowah, predominantly urban, showed an increase of nine. Mobile and

Montgomery, also predominantly urban, showed increases of 6 and 12, respectively. The ninth county, Tuscaloosa, showed a gain of 5 physicians, the only county in the State with a larger rural than urban population showing an increase of more than 3 physicians. This may appear to be an exception to the rule that increases in the number of physicians are confined to predominantly urban communities. However, Tuscaloosa County's failure to follow the predominant trend may be attributed to its peculiar status as the home of the State University, giving this rural community many of the advantages normally offered only by urban communities to the physician scouting for a suitable place to locate.




It would be difficult, if not impossible, to find nine Alabama counties having a more predominantly urban population than these that have been listed. It certainly would be impossible to find four counties having a larger proportion of urban dwellers than Jefferson, Etowah, Mobile and Montgomery, which showed an increase of 131 doctors out of a total increase of 142 for the nine-county group as a whole. Nearly 66 per cent of these four counties' total population is urban, as compared with less than 30 per cent for the State as a whole.




Let us turn now to a consideration of a group of counties that have shown the largest decrease in the number of physicians serving the medical needs of their people. This group consists of ten counties in each of which there are now not more than half —in some counties less than half—as many practicing physicians as there were 25 years ago. Autauga has only 6 physicians now, exactly half as many as it had in 1912. Bibb's physicians also decreased exactly 50 per cent, from 28 to 14. Bullock showed an even larger percentage decrease—from 22 physicians to 9. Cherokee's physicians total only 7 now, as compared with 16 in 1912. Coosa showed a drop from 20 to 4, or 80 per cent. There was exactly a 50 per cent decrease in Dale, 28 doctors in 1912 and 14 at present. In Greene the totals are 18 and 9, representing a 50 per cent drop. In Lowndes there was a decrease from 24 to 7, more than two-thirds. Washington showed a decrease from 14 to 6, while Wilcox has only 14 physicians at present, as compared with 37 in 1912.

Eight of these ten counties—Autauga, Bibb, Cherokee, Coosa, Greene, Lowndes, Washington and Wilcox—are altogether rural, as the term is defined for census purposes. The group as a whole—whose 90 doctors are serving, or trying to serve, the medical needs of an average of 2,228 persons each—has a total urban population of

only 6,277 out of a total population of 202,-747, or 97 persons out of every 100 being classified as country-dwellers. It is also significant that considerably more than one-half of the total population of these counties consists of Negroes, 107,445, as compared with only 92,769 white people.

Of the physicians in this group of counties, who, incidentally, number less than 42 per cent of the 1912 total, 16 have entered upon the practice of medicine within the past 20 years; 17 have been practicing from 20 to 29 years; 33 from 30 to 39 years; 17 from 40 to 49 years; and 7 for half a century or longer.

Two other groups of counties, one showing decreases in the number of doctors ranging from 2 to 29 per cent and the other showing losses varying from 30 to 49 per cent, also emphasize the seriousness of the situation with respect to the inadequacy of medical care in the rural sections.

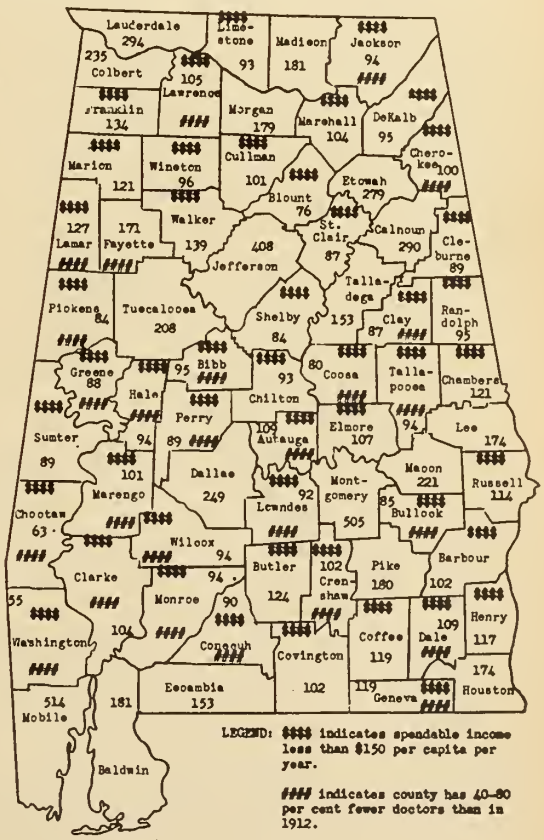
Nine of the 20 counties comprising the two-to-29-per-cent group are entirely rural. The group as a whole, in which the doctors decreased from 541 in 1912 to 466 in 1937, or approximately 14 per cent, has a total population of 754,943, of which more than 80 per cent is rural.

In the other group, consisting of 26 counties with decreases in physicians ranging from 30 to 49 per cent, we find that the total number of physicians has dropped from 761—25 years ago—to 463 at present, or more than 39 per cent. Sixteen of these counties—slightly more than half—are entirely rural. The group as a whole is slightly more than 90 per cent rural.

So much for diagnosis. The facts and figures that have been given show that the patient—namely, the status of medical care in rural Alabama—is in a rather serious condition. The next question is this: How can the needed medical care be provided?

It has long been known that physicians practicing in urban communities receive considerably more for their services than their professional brothers laboring in rural vineyards. The average small-town, or country physician (living in a community of less than 1,000 population) had an annual gross income approximately one-third less than that enjoyed by the average physician practicing in the United States.

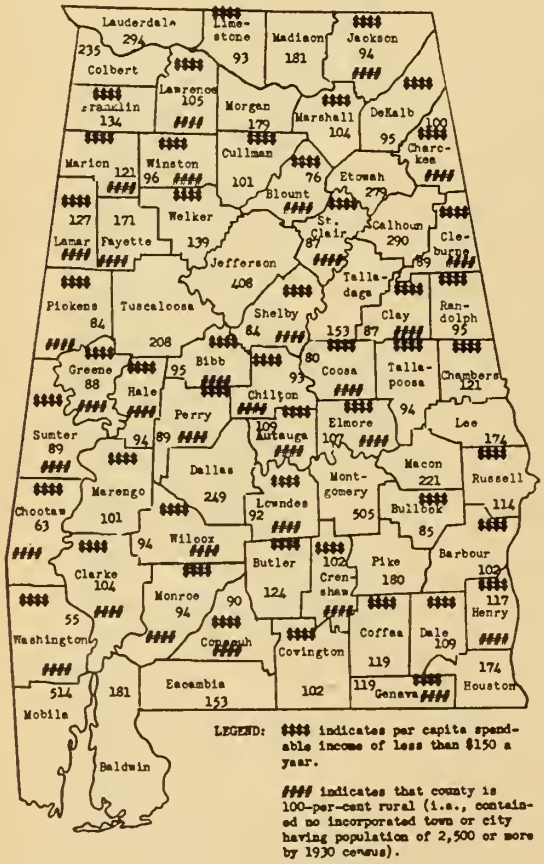
This is not surprising, of course. Generally speaking, rural communities are poorer than urban communities. Predominantly rural Alabama had a per capita income in 1935 of only $189, as compared with predominantly urban New York's 1935 per capita income of $700. The average per capita income of the 15 states in which rural residents outnumber urban by two to one was only $282 in 1935. Contrast this with the average per capita income of the United States as a whole of $432, and an average 1935 per capita income of $544 for the ten states having two urban residents for every rural resident.




Thus, rural poverty from the financial point of view and rural poverty from the point of view of medical service have an important cause-and-effect relationship. The lawyer who serves wealthy clients is the lawyer who himself becomes wealthy—not the country lawyer who devotes most of his time to defending poor Negroes in crap-shooting trials.

Poverty and disease usually go hand in hand. Poverty breeds not only illness, but also a host of other evils, including ignorance. A relatively illiterate community offers very little to a physician looking for a

place to begin his practice. No figures are available to show how Alabama's rural and urban counties compare on the basis of illiteracy, but it is significant that the State as a whole, predominantly rural, has an illiteracy rate approximately three times the national average of 4.3 per cent (1930). Because of the generally much better educational facilities offered by the city school system, it is safe to say that the State's rural sections have a considerably higher illiteracy rate than the urban communities.




With illiteracy come superstition and general backwardness. These make health progress, and indeed any kind of progress, an extremely slow process. A community cursed by such a handicap is unattractive, not only to doctors but also to the general type of public upon which the doctor must depend for remunerative practice.

Thus the solution of this entire problem of greatly reduced medical service in Alabama's rural counties resolves itself into economic terms and can hardly be expected to respond to any but an economic remedy. A community able to pay for adequate medical care—and so progressive that it is determined to get it—has little or no trouble in finding doctors willing and eager to provide it. State financial aid to the counties has enabled them to provide better educational facilities, better roads, better agricultural extension service, etc., than would ever be possible if they had to rely entirely upon their own resources. So far as strictly public health agencies are concerned, that is also true in the field of health. Yet it is not the function of official health agencies to render medical care to the individual sick. These services are the responsibility of the practicing medical profession. So enormous has become the load of the indigent and medically indigent, that, because of the relatively high cost of scientific medical services, many in these classes are not now receiving such services. To find an answer to this problem offers a challenge both to society and to the medical profession.

Alabama is a great state; but, unfortunately, cold, unanswerable statistics show that it is also a relatively poor state. These figures show that its 1935 per capita income was the lowest in the nation, with the exception of those of Mississippi and Arkansas, and considerably less than half that of the United States as a whole. That, rather than the fact per se that this is predominantly a rural state, is undoubtedly responsible for a reduction of 16 per cent in the State's doctors during a period when the State's population increased 21 per cent.

If we turn our eyes from the national to the State scene and compare, not state with state, but Alabama county with Alabama county, we find that what has been true of predominantly rural Alabama as a whole has been equally, and even more strikingly, true of most of the predominantly rural counties of this State.

If you will make a list of the counties classed as rural for census purposes in 1930, and another list of those counties that have less than $150 per capita of spendable income per year, as determined by a recent TVA study, you will be greatly surprised, no doubt, to find how many counties are on both lists and also how many are on neither list. You will find, for instance, that both lists contain the names of Wilcox, Jackson, Lawrence, Marion, Winston, Cherokee, Blount, Lamar, St. Clair, Cleburne, Clay,

Shelby, Pickens, Greene, Sumter, Choctaw, Washington, Clarke, Hale, Bibb, Perry, Monroe, Chilton, Coosa, Autauga, Lowndes, Henry, Geneva, Crenshaw, Conecuh, and Elmore—a total of 31 counties out of the State's 67. You will find that Lauderdale, Madison, Colbert, Morgan, Etowah, Tuscaloosa, Jefferson, Calhoun, Talladega, Mobile, Escambia, Houston, Lee, Macon, Pike, Dallas and Montgomery—a total of 17 counties —are on neither list, showing that they are not altogether rural and have per capita spendable incomes averaging $150 per year or more. That leaves only 19 counties—Limestone, Franklin, Marshall, DeKalb, Cullman, Fayette, Walker, Baldwin, Marengo, Butler, Covington, Coffee, Dale, Barbour, Russell, Chambers, Randolph, Bullock, and Tallapoosa—included in the third group which consists of counties that, for one reason or another, fail to follow the rule that has been mentioned. In the case of two of these, Fayette and Baldwin, the counties are 100-per-cent rural and still have per capita spendable incomes of $150 per year or more. In the case of each of the other 17 counties in this group, the per capita spendable income is under $150 a year, although these counties were not altogether rural.

Who has the secret that will raise the income level of the Alabama tenant farmer, the small-town Alabama merchant, the Alabama laborer, and Alabama workers in a thousand other fields? Such a person, when he is found, has the answer to the vexing problem of inadequate medical care for Alabama's rural population. He may be another Charles Holmes Herty, who will turn, not slash pine, but cotton, into newsprint and make cotton-growing much more profitable. New uses may be found for peanuts, corn, potatoes, fruits, and other products of Alabama soil and Alabama sunshine. When such a person completes his work, he will be found to be a greater benefactor than many a military genius who has received a hero's reward.

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

Samuel R. Damon, Ph. D., Director

### SPECIMENS EXAMINED

MARCH 1938

| | |
|---|---|
| Examinations for diphtheria bacilli | 740 |
| Agglutination tests (typhoid, Brills', undulant, etc.) | 557 |
| Typhoid cultures (blood, feces, urine) | 1,059 |
| Examinations for malaria | 1,123 |
| Examinations for intestinal parasites | 4,193 |
| Serologic tests for syphilis (blood and spinal fluid) | 19,171 |
| Darkfield examinations | 33 |
| Examinations for gonococci | 1,611 |
| Examinations for tubercle bacilli | 1,746 |
| Examinations for Negri bodies (microscopic) | 171 |
| Water analysis (bacteriologic) | 945 |
| Milk examinations | 2,283 |
| Pneumococcus typing | 37 |
| Miscellaneous | 1,492 |
| Total Specimens | 35,161 |

### MODIFICATIONS IN LABORATORY DIAGNOSIS OF SYPHILIS

Before the inauguration of the nation-wide campaign against syphilis by Surgeon General Parran in 1937, syphilis was a disease rarely spoken of outside of medical circles. Since that time many newspapers, popular magazines, radio programs, public speakers, etc., have directed public attention to the dread disease, syphilis. Likewise, physicians and health officers have been devoting more time and attention to carrying forward syphilis control programs. The increased attention to the disease in this state has been materially evident to the Bureau of Laboratories through the constantly increasing numbers of specimens received in all laboratories for syphilis examination. As this burden became heavier it became more and more of a problem to the state laboratory system. Increases in personnel in all the branch laboratories to meet the situation was a possibility too expensive for consideration. From this it followed that the solution of the problem must be sought in a simplification of procedure of such nature that the increased work could be handled without additional personnel and without any loss of accuracy of examination.

Such a simplification of procedure was effected April 11th, when two simple flocculation tests were substituted for the combina-

tion of one flocculation test and one complement-fixation test which had been in use previously. This substitution of the presumptive and standard Kahn for the modified Kahn and the Kolmer test formerly used materially reduced the time and labor necessary for the proper examination of any one specimen with no loss in reliability.

Justification for the substitution of a flocculation test for the time honored complement-fixation procedure is found in the experience of numerous workers who have studied the two methods of examination in parallel. In the report by the Committee on the Evaluation of Serodiagnostic Tests for Syphilis[1] it is stated, "The studies made by this Committee show that if two tests are to be performed, it is immaterial whether two efficient complement-fixation tests, two efficient flocculation tests, or a combination of one efficient flocculation test and one efficient complement-fixation test is selected."

When this new procedure was put into effect a general speed-up in the reporting of specimens for syphilis examination was also effected in all laboratories. This speed-up was accomplished by routinely making syphilis examinations in all branch laboratories three times a week (namely, Monday, Wednesday and Friday) with reports being placed in the mail by 5:00 P. M. on the day that the specimens are examined. To make it possible for all specimens to be reported on the same day that they are examined it has been necessary to include only specimens received before 9:30 or 10:00 A. M. on the day of examination in the group of specimens to be examined that day, any specimens received after that time being held over until the next examination day.

At the same time that the change in procedure was made, it was considered appropriate to simplify the syphilis examination report form. This new report form is less confusing to the average practitioner than was the old form which gave a quantitation of result which did not actually exist in the tests being used. The new form simply reports the specimen as positive, negative or doubtful, according to the result obtained, a single form thus covering all possibilities. In this respect the new form adequately substitutes for the multiplicity of forms formerly in use. In addition to providing a more understandable report for the physician this new form is proving to be a great time saver to the laboratory in the writing of reports.

(1) Am. J. Pub. Health, 27: 15 (January) 1937.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### THE ANNUAL REPORT OF A SMALL TUBERCULOSIS SANATORIUM

A copy of the report of the Medical Director of the Morgan County Tuberculosis Sanatorium to the Board of Trustees of that institution has been received by the State Department of Health and makes very interesting reading.

This Sanatorium was constructed under one of the early relief programs but the problem of equipment and maintenance had to be met by the county itself. It opened in November of 1935 with 15 beds; restricted to Morgan County patients. During 1936 Colbert County assumed the responsibility of caring for its own tuberculosis problem by the purchase of five beds and by an appropriation to take care of their upkeep. The number of beds in use has been expanded until at the end of 1937 there were accommodations for thirty patients. Part of this expansion has been made possible by the admission of pay patients from other counties in North Alabama and part of it by the initiation of the state subsidy in May of 1937. Further expansion will undoubtedly come but even this small number of beds has been doing a great work in combating tuberculosis.

To quote from the report of the Medical Director:

"January 1, 1937 found 22 patients in the Sanatorium. During the year, there were 89 admissions. Two of these patients were readmitted, however, so that in reality, only 87 patients were admitted. Therefore a total of 109 patients were treated in 1937. Of this number, 64 were women and 45 were men. The Negro patients numbered only eleven, 9 being women and 2 men. Seventy-five received some form of surgical collapse, either pneumothorax or phrenic nerve operation. This is slightly less than 69% of the total number. These patients spent a total of 7,904 days in the hospital during 1937 with a daily average of 21.2. The average stay per patient was 72.5 days. Eighty-nine patients were discharged during 1937, 49 of these were women and 40 were men.

"In the x-ray department 984 x-rays were

made—214 were on patients in the hospital while 770 were on out-patients.

"Surgical operations: Phrenicotomy or crushing of the phrenic nerve was done on 24 cases. The pneumothorax operation was done 731 times; 458 on house patients and 273 on out-patients."

These figures illustrate the change in the trend of treating tuberculosis. Sixty-nine per cent of the patients were treated by surgery and the average stay in the hospital was only 72.5 days. This is certainly not the picture of tuberculosis treatment a few years ago. Of course these patients on discharge need further care but the care can be given in their own home and in the physician's office. The rapid turnover in the hospital enables a small institution such as this to initiate treatment on a large number of patients at a cost within reach of the average county.

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## SYPHILIS EPIDEMIOLOGIC INVESTIGATION

Syphilis usually spreads in small localized epidemics which, if unchecked, may result in a very large number of individuals becoming infected. Epidemiologic investigation of each case often will reveal the source of the infection and the infected contacts of the patient.

Recently in Jackson County the health officer was able to trace one of these small localized epidemics. One male infected three women. One of these women infected one male and the second one infected 12 males and the third one did not infect anyone. Each secondarily infected case proceeded to infect others until a total of 26 cases were found and each case could be traced directly through their sources or contacts to the original infected male. If this investigation had not been made many more cases would have resulted. If treatment alone had constituted the control work many of the infectious cases would have been missed. Treatment alone will not control the spread of syphilis unless, of course, all infected individuals present themselves for treatment. This is the ideal and theoretically it is posside but infected humans are neither idealists nor humanitarians, hence the necessity for epidemiologic investigation. This type of investigation, plus treatment, will go far towards controlling the spread of this modern plague of syphilis.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### THE SUMMER ROUNDUP OF PRESCHOOL CHILDREN

The National Congress of Parents and Teachers sponsors a summer roundup of the children who are to enter school the following school year. The health department personnel gladly cooperates in the endeavor. The purpose of this program is to send to school a group of children who are as free as possible from remediable physical defects. The main object of the summer roundup is to have each child examined and all remediable defects corrected by the family physician and dentist. It is recognized that the child's progress in school is influenced to a large extent by his physical condition.

In promoting the summer roundup every effort is made to further a closer relationship between parents, their children and the family physician and dentist. Parents are encouraged to take their children to the office of the family physician and dentist. Physicians are urged to use the record form when making the roundup examinations and to give plenty of time to get an accurate history, make the examination, record the findings and advise the parents. The failure of the physician to allot sufficient time for the history taking, making the examination of the child and interviewing parents tends to defeat the purpose of the roundup.

In many counties the county health officer makes the medical examinations during the summer roundup. He records the findings and advises parents to take their children to family physicians and dentists for further examination and correction of physical defects. Smallpox vaccination should be done during the summer roundup and a Schick test should be made or diphtheria toxoid administered. Typhoid immunization should also be given at this time.

The real value of the summer roundup is to be found in the immunization procedures and correction of remediable physical defects. County health workers, therefore, are particularly interested in follow-up activities regarding the correction of defects. County health nurses usually visit in the homes to urge upon parents the importance

of heeding the advice given at the time of the examination.

The wholehearted cooperation of physicians and dentists is sought in securing the correction of the remediable defects found and making reports of such corrections. The combined efforts of parent-teacher associations, health departments, welfare departments, school authorities, local civic clubs, and practitioners are urged to the end that all children may enter school with the maximum of physical attainment.

## BUREAU OF VITAL STATISTICS

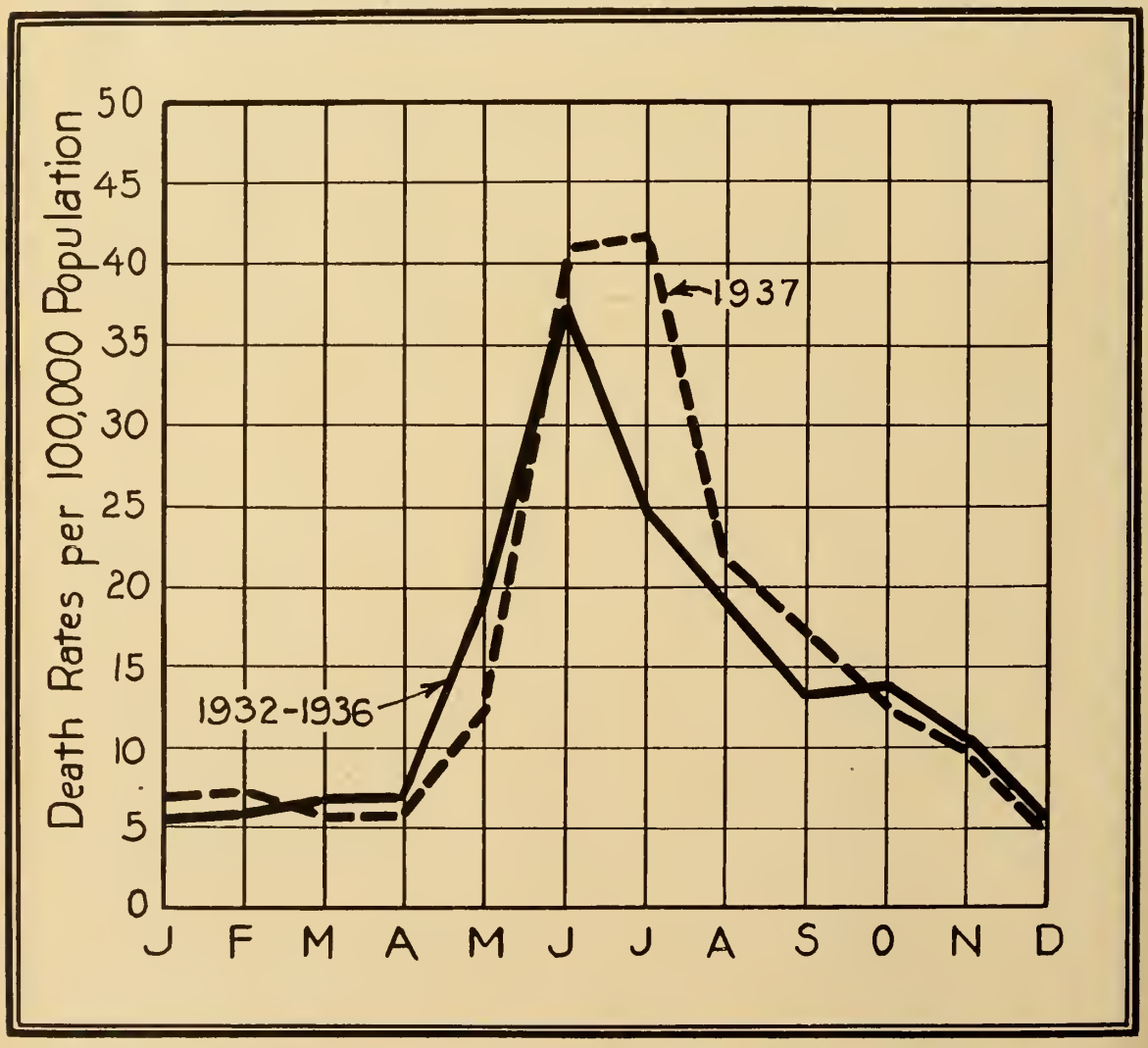
Leonard V. Phelps, S. B. in P. H., Director

### DIARRHEA AND ENTERITIS (UNDER TWO YEARS)

Considerable progress has been made in the reduction of deaths from diarrhea and enteritis (under 2 years). In 1917, the peak year of record, the death rate was 68.0 per 100,000 population; in 1937, the provisional rate was 15.6. During the past decade, white and colored death rates have been approximately the same.

A study of the seasonal mortality from all causes will show essentially two peaks, one in the winter and the other, the summer. The winter peak is principally due to respiratory causes; the summer, to diarrhea and enteritis. The accompanying table and chart show clearly the high summer incidence. Provisional figures for 1937 indicate that the peak was higher and more prolonged than that of the average for the preceding 5 year period (1932-1936).

In short, although we have succeeded in reducing the death rate from this disease, we have not been successful in flattening the curve of incidence during the summer months.




DIARRHEA AND ENTERITIS (UNDER 2 YEARS), ALABAMA: 1932-1937

DEATH RATES PER 100,000 POPULATION FROM DIARRHEA AND ENTERITIS (UNDER 2 YEARS)
ALABAMA, 1932-1937

| Year | Death Rates Per 100,000 Population | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan. | Feb. | Mch. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
| 1932 | 4.8 | 6.5 | 6.5 | 4.5 | 11.3 | 12.6 | 15.2 | 10.8 | 5.8 | 7.4 | 3.6 | 4.8 |
| 1933 | 3.0 | 5.7 | 5.6 | 10.2 | 24.0 | 55.3 | 40.6 | 32.5 | 21.7 | 18.8 | 11.5 | 9.8 |
| 1934 | 4.7 | 4.7 | 6.8 | 4.4 | 12.2 | 22.8 | 18.6 | 7.6 | 5.2 | 4.7 | 7.9 | 2.1 |
| 1935 | 5.4 | 4.6 | 9.6 | 10.8 | 29.7 | 43.2 | 21.3 | 17.6 | 10.4 | 11.3 | 13.4 | 8.0 |
| 1936 | 9.1 | 7.1 | 5.8 | 4.7 | 18.2 | 52.3 | 32.4 | 26.9 | 22.3 | 26.6 | 16.7 | 2.9 |
| *1937 | 6.9 | 7.2 | 5.7 | 5.9 | 12.3 | 41.0 | 41.7 | 21.7 | 17.3 | 12.7 | 9.7 | 4.9 |
| Average 1932-1936 | 5.4 | 5.7 | 6.9 | 6.9 | 19.1 | 37.4 | 24.9 | 19.2 | 13.1 | 13.8 | 10.7 | 5.5 |

*Provisional figures.

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

## PHYSIOLOGICAL ASPECTS OF MINERAL SALTS IN PUBLIC WATER SUPPLIES*

### HARD WATERS

One quite often is told by water supply consumer critics that due to the calcium and magnesium content of drinking water, all of our alimentary canals are gradually becoming coated with scale like a boiler, all of which means nothing. Hard waters have been and are still blamed, even by a few physicians, for almost every disease and especially kidney trouble, arteriosclerosis, constipation, gallstones and rheumatism! Hard waters have been exonerated many times by investigators, in 1911 by Lewis, in 1924 by Chase, again in 1925 by Myers and White, and so on, both by the study of mortality statistics and experimental research. The evidence is rather convincing and it remains for reliable investigators to disprove. I have been unable to find any reliable published paper which definitely indicates that hard water, such as supplied by the majority of U. S. public water works away from the Atlantic Coast, is of any harm physiologically. Correcting the *pH* of the water with lime is doing the public a favor—since the one element perhaps most lacking in the American dietary is calcium; and an insoluble calcium salt coating of distribution pipes is sometimes desirable in preventing corrosion.

The human body requires approximately 0.7 to 1 gram of calcium a day. To be utilized effectually, factors controlling its absorption must be adequate. Sherman and others state that the calcium in drinking water supplements that taken in food as far as body requirements for the element are concerned. This means that the comparatively little inorganically combined calcium absorbed from drinking water is helpful and certainly not harmful.

Considerable amounts of calcium salts affect the palatability of water, but that is a matter of individual tastes. As a general rule, excepting for very few of the metallic ions, the taste factor will prevent consumers and even animals from harming themselves physiologically from water ingested. There still seems to be no good scientific reason to add calcium to the list of ions limited in drinking water by the 1925 U. S. Public Health Standards.

### CAUSTIC ALKALINITY

One of the few recommendations of the U. S. Public Health Service Standards for interstate water supply written in italics is that "water should contain no caustic alkalinity." This specification, from a health standpoint, has no defense. It is more a requirement of good filtration plant operation since if softening is involved in the treatment and much caustic alkalinity is concerned, there is likely to be an extensive deposit of calcium carbonate in the pipe lines. Concerning this recommendation from a physiological viewpoint, a committee of the Division of Water, Sewage and Sanitation Chemistry, American Chemical Society has reported in part as follows: " . . . Investigation by your committee develops that there are a number of locations in the United States where waters containing caustic alkalinity have been furnished and used for drinking and domestic purposes for as long as 16 years with no apparent adverse physiological effects. Search by your committee of available literature develops no reference to permissible amounts of caustic alkalinity in drinking water other than the mere statement contained in this report. There appear to have been no facts or research which would substantiate possible deterimental results from using waters containing small amounts of caustic alkalinity . . . It is the recommendation of your committee that this subject be referred to the Council with the suggestion that it be assigned to the Physiological Chemistry Section of the Division of Biological Chemistry, or the Division of Medicinal Chemistry, for further study, report, and recommendation."

This report was approved by the Division of Water, Sewage, and Sanitation Chemistry, September 11, 1934, with the added request that the matter be also referred to the American Medical Association. Nothing has come of it since that time. Hale writes in September, 1935, "It seems unlikely that a small excess of lime hydrate alkalinity in drinking water would have any delete-

*Last of two parts. The first appeared in the April issue of this Journal. Reprinted from the Journal of the American Water Works Association, February 1938. The author's bibliography will be furnished by the State Department of Health on request.

rious effect on health. It might have effect upon taste, although in these experiments, it required the highest quantity, 100 p.p.m., to cause a distinct limelike effect. The dividing line probably lies between 50 and 100 p.p.m."

Of course, the greatest variable one encounters in passing from one region to another is water. For this reason, it is often claimed that changing from one water supply to another brings about intestinal changes in the persons concerned due to differences in the substances dissolved in the waters. There is no question but that such intestinal disturbances occur but they are probably due to an adjustment of the intestinal tract and metabolic processes to new conditions, principally *pH,* rather than to the fact that the changed water supply is unhealthful.

According to the Treasury Standard, magnesium should not exceed 100 p.p.m. Like calcium ions, magnesium ions in public water supplies are definitely of no public health concern. The magnesium salts will affect the taste of the water more than calcium ones. Obviously, magnesium sulfate concentration should not be too high in a potable water. If a consumer finds a potable water palatable, he surely will not be ingesting too much magnesium. This element is now known to be essential to human body function, approximately 0.34 gram being required per person per day. Drinking two quarts per day of the hard water of the middle west will not give this amount.

### IRON

Iron salts, ferric and ferrous, in drinking water are harmless physiologically. The limit of 0.3 p.p.m. is rather for taste and color considerations than for physiological reasons. One requires at least 5 or 6 mgs. of iron a day. Inorganically combined iron as present in drinking water can be absorbed and utilized. From two quarts of water with 0.3 p.p.m., one would obtain about 0.6 mg. of iron, so the limit on iron is very low from a biochemical standpoint. Water leaving a purification plant with 0.3 p.p.m. could not pick up enough iron from the distribution system to make the element of any concern from a health standpoint. Enough iron present to make the water objectionable to a laundry is not enough to be of importance to public health officials. There is a reason for keeping iron in a potable water low, but it is certainly not a physiological one.

### SODIUM AND POTASSIUM

Sodium and potassium, found in all purified waters, are of no significance biochemically in the amounts present. Sodium is the least toxic of the cations employed in therapeutics.

### ZINC

The Public Health Service's limit of 5 p.p.m. of zinc in drinking water presumably was set because of consumer experiences which, in recent times, have been proven by scientific investigations as wrongly interpreted.

Heller and Burke report as follows: "Zinc added to a normal ration either in the form of pure zinc dust, zinc oxide, or certain zinc salts, in amounts as great as ever found in contaminated foods did not interfere with growth, reproduction, and normal functions of the rat through three generations. No pathological conditions were found in the organs of rats fed the rations used in this experiment. The total ash content of the organs studied showed no perceptible increase."

Drinker, Thompson and Marsh report that organic and inorganic zinc salts fed to rats in doses from 2 to 36 mgs. of zinc daily for long periods of time had no significant effect upon the health of the parents, upon fertility nor upon the health and early growth of the offspring and that zinc even in large doses did not result in storage of zinc in the animal in amounts above the normal.

Bartow and Weigle have made an effort to determine the effect of inorganic zinc salts administered to animals in drinking water. They fed rats for 40 days as high as 1000 p.p.m. and report as follows: "The rats ate less, and gained less. These results might be due to the astringent metallic taste of the solutions containing a high percentage of zinc sulfate. All the rats were apparently healthy at the close of the experiments. Those on 1000 p.p.m. of zinc solution were noticeably irritable and easily startled on hot days, but on cool days were apparently normal."

Drinker and Fairhall write: "When the source of zinc contaminating water is galvanized pipe—and this is the most common situation with which we deal—the zinc compounds in the water will be a mixture of oxide, hydroxide, and carbonate, the latter predominating. If present to an amount of 30 mg. of zinc per liter, or 30 p.p.m., zinc carbonate will cause appreciable milkiness in the water and many persons will complain of an astringent taste. While there is no reason to consider this harmful, it is doubtful whether any community would tolerate it without incessant complaint. Both taste and appearance act to prevent zinc in its most common form from being a persistent contaminant of water supplies even in amounts which are harmless." Also "this limit" (that is 5 p.p.m. of zinc) "has been applied freely to many conditions in which zinc is ingested. Since the zinc ion is not of itself poisonous, and many times 5 p.p.m. may be taken without harmful effects, it is suggested that this limit, which gives a relatively innocuous metal an undeserved reputation for toxicity, be increased or done away with altogether. Foods or beverages, with the exception of simple or chlorinated drinking water, should not be stored in zinc-lined or galvanized containers." Relatively high zinc ion content waters should not be used in making acid drinks, such as lemonade, due to the formation of poisonous organically combined zinc salts, e.g., zinc citrate.

Lothian and Ward and Anderson, Reinhard and Hammel have shown that chlorinated drinking water is not abnormally corrosive to zinc, whereas distilled water is. The last three investigators have partially reviewed the literature on the psysiological effects of zinc ions in water supplies and report consumer experience to as high as 40.76 p.p.m. without any apparent harmful effects. These authors believe that waters containing up to 40 p.p.m. (high enough to impart a taste) are safe for human consumption.

They point out that "apparently the effect of zinc on the human system is governed to a considerable extent by the acid radical with which it is associated. Thus zinc chloride is regarded as the most caustic of the common zinc salts. Zinc sulfate is somewhat caustic, but to much lesser degree than the chloride. Zinc oxide and zinc carbonate are not considered corrosive." Drinker and Fairhall previously had arranged the zinc salts in the order of their irritability or causticity as follows: chloride, sulfate, acetate, lactate, tartrate and malate.

Obviously, with scientific data so over-balancing the hearsay, and taking into consideration the recent work of Elvehjem and Hart upon the physiological need for zinc, the new limit to be set for this element in the near future by the U. S. Public Health Service should be much higher than 5 p.p.m. especially since the occurrence of excessive amounts of zinc ions in public water supplies is rare. More good scientific data like this for zinc are needed for some of the other ions.

## MINOR IONS

Selenium, boron, manganese, radium, silver and barium present in water supplies in sufficient concentrations to be of public health concern constitute highly sectional problems and will not be discussed at length in this paper.

Highly seleniferous forage has killed cattle but "in no case, with the possible exception of drainage water from an irrigation ditch in Colorado, has a sufficient selenium content been found to cause immediate death." The assignment of water as the cause of animal disease or death in seleniferous areas is quite common. However, Miller and Byers report, "It seems, however, to be usually, or always, a secondary cause." The selenium health hazard is being studied thoroughly by M. I. Smith and others. The presence of selenium ions in a public water supply may be a health hazard in a few sections of the country but it is a rather remote possibility.

Boron ions are of great importance to plant life. An excess or deficiency of boron in water used by plants has marked effects. The element, however, does not offer a public water supply problem as far as is known at present. Boron ions in concentration high enough to affect plant growth will have no adverse physiological effect as far as present knowledge of the problem is concerned.

Manganese like its near relative, iron, has to be removed from potable water for reasons other than physiological ones. There is no public health danger from this element which in recent years has come to be considered essential to normal body function.

There is no case reported in the literature of radium poisoning by drinking waters. This is a nostrum problem only.

Little is known about the biochemistry of silver. Due to the use of silver in a water sterilization process, consideration of the physiological effects of silver ions has come into the picture. Besides, consideration is being given to the possibility of silver ions removing available iodide ions from water supplies, silver iodide being insoluble. The latter possibility also applies to barium. In Switzerland, where there is an appreciable amount of barium in drinking waters, endemic goiter is of a much more severe type than in this country. Boissevain and Drea, however, have shown that there is no relationship between incidence of goiter and the silver and barium content of water supplies. The physiological effects of both of these ions, when present in water constantly used, are unknown to the present time. All these elements mentioned, however, may come into the picture in the future as fluorine has in the last few years, perhaps making it necessary to have spectrometric equipment in water purification plant laboratories.

No research work has been done on the tolerance of the human body to hexavalent chromium. At least one proprietary preparation which is being sold to add to water supplies for the purpose of preventing corrosion of piping produces, when used as directed, a concentration of 0.31 p.p.m. sodium chromate or 0.1 p.p.m. chromium. Since nobody knows the physiological action of small amounts of hexavalent chromium, it would seem judicious to study the matter before approving addition of such ions to a public water supply. For all anyone at present knows, amounts of chromium as low as 0.1 p.p.m. may be physiologically harmful just as fluorine is known to be in that amount.

## FLUORIDES

Measurable physiological effects have been definitely noted from too much fluoride in water supplies. Chalky white patches upon the surface of the teeth (so-called "mottled enamel") have in many cases been definitely traced to an excess of fluoride in drinking water. In 1901, the disease was first reported in Italy by Dr. J. M. Eager of the U. S. Public Health Service. In 1907, papers about the disease began appearing in this country. As far back as 1918, it was known that drinking water was somehow connected with mottled enamel, but not until 1931 was fluoride found to be the cause. The fluoride problem is fortunately a sectional one, but more widespread than generally thought, especially as concerns well waters. It must be kept in mind that public water supplies are not the only sources for fluoride and that all dental fluorosis can not be blamed upon drinking water.

Many reports in the literature and one very recently by Dean and Elvove present evidence to prove that amounts of fluoride not exceeding 1 p.p.m. in drinking water are of no public concern.* From all the investigative work which has been done on fluoride, it seems desirable that the new revision of Appendix IV of the U. S. Public Health Service Drinking Water Standards list the limit of fluoride (as F) as 1 p.p.m. It is unfortunate that the physiological aspects of all the chemical elements appearing in public water supplies have not been studied as comprehensively as fluorides. The effects of salts of this particular element on the human body, however, are easier to follow, the teeth acting as indicators.

### IODIDES

Iodine in drinking water is a sectional problem and does not call for extended discussion in this paper. The physiological effects of complete lack of this element are well known. Very little iodine is needed per day by an individual. Ten parts of iodide per billion of drinking water is regarded as an adequate supply to protect against goiter. In most sections of the country, a person gets much more than the amount needed from food and water ingested, so no problem is presented by iodine excepting in goiter regions. Iodization of public water supplies has been done in some places, notably, Rochester, N. Y., but it is not a procedure advocated by medical authorities because of sensitivity to the element in the case of some individuals. The use of iodized table salt in goiter zones is more easily controllable than an iodized public water supply. Many physicians are even averse to the general use of table salt containing iodides, preferring instead iodide medication to the comparatively few who may need it. Certainly iodized table salt is over-used in this country. I know of no case where harmful physiological effects resulted from iodides in a purified water to which no iodide had been added.

### CHLORINE

Less than 1 p.p.m. of residual free chlorine remains in potable water after good purification and distribution. Free chlorine is a very reactive element. Even if it leaves the source of supply higher than 1 p.p.m., it is cut down in distribution, so there is no danger physiologically from residual chlorine. Chlorine introduces a taste problem and not a physiological one. Water works men should keep the free chlorine content below 1 p.p.m. for the health of gold-fish, if for no better reason. Certainly no demonstrable physiological effect has ever been reported from ingesting a purified water high enough in free chlorine to give a distinct chlorinous taste.

### CHLORIDES

Chlorides to the extent of 250 p.p.m. are allowed in drinking water, and are of no harmful importance physiologically to normal individuals, although they do affect taste. Seldom do the chlorides ever approach this figure, except in certain sections. Some water supplies in the country contain greater than 500 p.p.m. chlorides with no apparent harmful results to consumers. Most people can not taste sodium chloride when it is present to the extent of 350 p.p.m. Of course, there is quite a fluctuation in the thresholds of taste sensation, due to various factors acting on the nervous system. With repeated practice in the determination of tastes, however, a considerably keen taste sensitivity can be developed.

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The Federal Food and Drug Administration tolerance for fluorine in foods is 1.45 p.p.m., a limit much stricter than 1 p.p.m. suggested for drinking water. The reason for this stricter limit for foods has been given in a footnote on page 391 of the April number.

### SULFATES, CARBONATES AND TOTAL SOLIDS

The U. S. Treasury Department Drinking Water Standards set an upper limit for sulfates of 250 p.p.m. This figure was not included for physiological reasons, since the biochemical effects of sulfates in comparatively low concentrations are not known. The cathartic effect of magnesium and sodium sulfate in relatively large doses is well recognized, but what their effects are in real small quantities is very difficult to determine. A water satisfactory to industry in the way of sulfate content will certainly be harmless physiologically as far as anyone knows at the present time.

Carbonates need not be brought into the discussion since they have never been proven physiologically harmful in the amounts they occur in a purified water. The limit of 50 p.p.m., calculated as normal calcium carbonate, is much too strict from physiological considerations.

For total solids 1000 p.p.m. is the limit recommended by the Treasury Standards. Taste is concerned here—depending upon the salts which make up the 1000 p.p.m. Some western waters contain total solids higher in amount than this without any apparent physiological effects resulting. The average potable water carries from 50 to 500 p.p.m. of dissolved solids. Traveling from a community with a water supply of high total solid content to one having less solids dissolved means an adjustment for a consumer physiologically, but this does not mean that either of the waters is physiologically harmful. 1000 parts of total solids to a million of water is high enough concentration to produce a taste to most people no matter what the combination of salts may be. From a taste standpoint, therefore, and not from a physiological one, this limit is one which might be justifiably lowered.

### PYRIDINE FROM AMMONIUM SALTS

This paper has nothing to do with organic impurities in a public water supply. In closing, however, I would like to include one organic substance about which questions are often asked. Some purification plants, for the purpose of economy, are using a by-product ammonium sulfate. The ammonia, being of coke oven origin, may contain pyridine. Pyridine is not especially toxic, although word has got around among some water works men that it is! Solutions as high as 10 per cent have been used therapeutically in treatment of upper respiratory afflictions. The little pyridine which gets into a water supply, due to the use of by-product ammonium sulfate, is of no importance physiologically. Heller and Pursell have reported that a substance considered as toxic as phenol may be very innocuous even when in comparatively high concentration in drinking water. Working with rats, they report, "It is surprising that waters containing 5000 to 8000 p.p.m. apparently do not interfere with growth, reduction and lactation—and even 12000 p.p.m. may be tolerated." If this be true, it will serve as one of the best examples to show that jumping at conclusions without the support of scientific data is very risky.

SUMMARY

1. Very few inorganic substances, in the concentrations found in public water supplies in most sections of the country, have been really proven by scientific data to affect the public health.

2. As a general rule, a non-palatable water may do more harm indirectly from a physiological standpoint, due to people not drinking it, than all the chemicals in the water put together. Besides, a non-palatable water may cause consumers to resort to other waters which are palatable but unsafe.

3. As a general rule, excepting for a very few of the ions such as lead and fluorine, the taste factor will prevent consumers from harming themselves physiologically from water ingested.

4. False conclusions, deduced from consumer experience rather than from sound scientific data, have been considered in relation to a number of constituents occurring normally in a purified water supply.

5. Water works or purification plant engineers, the ones almost always held responsible for the water reaching consumers, should have control of distribution systems.

6. The copper, caustic alkalinity, and zinc limits in Appendix IV, U. S. Public Health Service Water Standards, should be made less strict. It is judicious to maintain the lead limit so as to be on the safe side. Limits for fluorides should be added and rather remotely, perhaps, limits for barium and selenium.

## CURRENT STATISTICS

*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA
1938

| | Feb. | March | Estimated Expectancy March |
|---|---|---|---|
| Typhoid | 14 | 12 | 11 |
| Typhus | 10 | 3 | 7 |
| Malaria | 44 | 59 | 82 |
| Smallpox | 3 | 4 | 17 |
| Measles | 2827 | 4367 | 643 |
| Scarlet fever | 67 | 54 | 58 |
| Whooping cough | 83 | 127 | 146 |
| Diphtheria | 55 | 49 | 58 |
| Influenza | 1196 | 659 | 817 |
| Mumps | 141 | 187 | 165 |
| Poliomyelitis | 2 | 4 | 2 |
| Encephalitis | 3 | 4 | 4 |
| Chickenpox | 323 | 245 | 248 |
| Tetanus | 3 | 6 | 3 |
| Tuberculosis | 214 | 217 | 318 |
| Pellagra | 24 | 19 | 29 |
| Meningitis | 32 | 31 | 13 |
| Pneumonia | 632 | 440 | 534 |
| Syphilis | 1776 | 1881 | 166 |
| Chancroid | 9 | 5 | 7 |
| Gonorrhea | 292 | 327 | 209 |
| Ophthalmia neonatorum | 0 | 2 | 2 |
| Trachoma | 0 | 0 | 0 |
| Tularemia | 2 | 1 | 3 |
| Undulant fever | 3 | 1 | 1 |
| Dengue | 0 | 1 | 0 |
| Amebic dysentery | 0 | 0 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 63 | 85 | |

*As reported by physicians and including deaths not reported as cases.
The Estimated Expectancy represents the median incidence of the past nine years.
With the venereal diseases, clinic cases were not included prior to 1936.

# Book Abstracts and Reviews

**Workbook in Elementary Diagnosis for Teaching Clinical History Recording and Physical Diagnosis.** By Logan Clendening, M. D., Professor of Clinical Medicine, University of Kansas. Illustrated. 167 pages. 1938. Cloth, $1.50 net. C. V. Mosby Company. St. Louis, Mo.

As its title indicates, this text is a workbook in elementary diagnosis. It is to be used in teaching physical diagnosis to medical students. Having described the methods of examination—inspection, palpation, percussion and auscultation—the author tells in detail how to examine each organ or system in the body. In the description of various procedures, he quotes freely from the original authors, McBurney, Murphy, Laennec, Flint, D'Espine, von Graefe, Argyll Robertson, Hutchinson, Broadbent, Stokes, Raynaud, Berger, Parkinson, Erb and others. Having been told how to do an examination properly, the student is given a series of exercises in examining various systems of the body and then is offered two complete physical examination forms to fill out after examining patients in the clinic. Taken for its original purpose, the book deserves commendation. It should not be purchased with the idea of getting a book on physical diagnosis for practical use by active physicians. The illustrations are very graphic and valuable for teaching.

C. K. W.

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**America's Purpose.** By Alfred J. Snyder. Philadelphia: The Declaration Press. 375 pages. Price, $3.00.

From time to time almost any professional or business man receives in his morning mail neatly mimeographed letters telling him in impressive facts and figures that a few heartless tycoons have grapple-hooked practically all the wealth in the country and inviting him to join some organization which promises to correct this horrible condition, abolish poverty, give everybody a five-thousand-dollar-a-year income, and make every malcontent's greatest dreams come true.

One thinks of those organizations, some of them undoubtedly sincere, when one scans the pages of Mr. Snyder's book, which evidently was written in all sincerity in the hope that it would point a way out of the unhappy economic and social conditions in which millions of Americans still find themselves. There is a ring of intellectual honesty throughout the nearly 400 pages which the author, a member of the Philadelphia bar for over 22 years and formerly a law professor at Temple University, requires to diagnose the country's economic ills and to suggest a remedy.

Mr. Snyder's solution for these ills is "ownership by society (presumably the Federal Government) of that which is essential to society as a whole." He is rather indefinite as to what professional activities and businesses he means to include in that sweeping classification, but the term might be made to take in practically every human activity, from the billion-dollar utilities corporation to the one-horse farmer on an Alabama hillside or a country doctor driving his four-year-old automobile in the dead of night to answer a call of distress from an Alabama mill village.

Mr. Snyder has a ready, but pretty unconvincing, answer to those who contend that private operation of business is more efficient than government operation. Adverting to the cry of "government inefficiency," he has this to say:

"This attack on government contains a double fallacy. First, it presupposes that those who criticise government are themselves efficient. If this were so, we would not be confronted by our present economic problems. Secondly, it argues that society as a whole is not the equal of some of its parts. This is a mathematical impossibility . . . The government of the United States includes all of us. If there is any man, or group of men, who is now capable of performing our economic functions, then government, which includes them, is at least as capable."

Mr. Snyder's defense of government operation strikes at least one reader of his book as containing, to use his words, "a double fallacy."

It does not necessarily follow that "those who criticise the government" (that is, governmental efficiency in business) are necessarily inefficient because they did not prevent poverty and want. Admittedly, private enterprise did not make a perfect job of distributing the national wealth so as to make it serve the greatest needs of all the people. But does it necessarily follow that things would have been better had business agencies been entirely in the hands of representatives of the Federal Government? If Dr. A's patient takes a long time to recover from a case of tuberculosis, does it necessarily follow that Dr. B could have cured him in a week? Is the Federal Government's record in the operation of the railroads during the war, resulting in the highest passenger and freight rates in history and continuing deficits, or its operation of the American merchant marine, which added hundreds of millions of dollars to the burdens of the taxpayers, or the postal service, which has actually operated in the red for many decades without a break, although clever bookkeeping methods (methods which only a governmental agency, with access to the federal treasury can use) occasionally shows an apparent surplus—does this record prove that Uncle Sam is a particularly good business man?

In objecting to the argument that "society as a whole is not the equal of some of its parts" and describing this as "a mathematical impossibility," would Mr. Snyder contend that it is "a mathematical impossibility" for the best man in a group of a thousand men to be a better executive than the average man in that group, or the group as a whole? Society is, as he insists, "the equal of some of its parts." It is not, however, the equal of the best one per cent of its members, or, for that matter, of the top third. Society as a whole, experience has taught any number of times, reaches, in intelligence, honesty, ability, etc., only the level of the average, not the exceptional, person of which it is constituted. Who will contend that a frenzied mob, trying to lynch a helpless Negro, represents as high a degree of intelligence and citizenship as that community's leading citizen represents?

It is hard to believe that, with all his sincerity, Mr. Snyder will win many adherents to his plan to make America over.

J. M. G.

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**Operative Gynecology.** By Harry Sturgeon Crossen, M. D., and Robert James Crossen, M. D. Fifth edition. Entirely revised and reset. 1,264 illustrations, including 3 color plates. C. V. Mosby Company, Publishers. St. Louis, Mo. 1938. Cloth. Price, $12.50.

Seven years have elapsed since the last edition of this book. In that period of time a large amount of new information has been added to our means of diagnosis and treatment in the field of gynecology. These new developments are included in this edition and are covered in a clear and comprehensive manner. About 200 new illustrations have been added, making a total of 1,264. The book is greatly enlarged and has, in many instances, been almost entirely rewritten. However, the chief attraction of this work remains. I refer to that rather individual approach to the separate problems in the field of gynecology. This approach is best described by Doctor Harry Sturgeon Crossen in the preface of the first edition: "This work is devoted exclusively to operative treatment. The endeavor has been to present this fully in all its bearings —the technique of the various operations, the difficulties likely to be encountered, the indications for operation in the various diseases and the selection of the exact form of operative procedure best suited to the particular case." Since the first edition, however, there has been a large amount of additional subject matter which, at the present time, makes the book much more than simply an operative surgery. Diagnosis and preoperative and postoperative treatment are considered in sufficient detail.

The portion of the book covering pelvic endometriosis is, in my opinion, the best article on this subject. The chapters on anesthesia and on the colon, rectum and small intestines, in relation to pelvic surgery, are written by Doctor H. S. Brookes and compare favorably with the remaining portions of the book. The operative technique is excellent and well illustrated.

It would seem that the additional subjects are sufficient to justify the purchasing of the fifth edition.

J. L. B.

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**Macleod's Physiology in Modern Medicine.** Edited by Philip Bard, Professor of Physiology, Johns Hopkins University School of Medicine. With collaboration of Henry C. Bagett, George R. Cowgill, Harry Eagle, Chalmers L. Gunmill, Magnus I. Gregersen, Roy G. Hoskins, J. M. D. Olmsted and Carl F. Schmidt. The C. V. Mosby Company, St. Louis, Mo. 1938. 8th edition. 1,051 pages. Cloth. Price $8.50.

When Professor Macleod wrote the first edition of his physiology in 1918, he aspired to write a text-book that would bridge the gap between laboratory physiology and clinical medicine. His book was to serve as a guide to the clinical application of physiology and biochemistry. In this aim he was successful. In 1935, the seventh edition of this book was published—shortly before the death of its author. Through that edition the book remained a practical physiology.

The new edition, edited by Bard, disclaims any pretext of being an applied physiology. Its chap-

ters, written by professors of physiology, physiological chemistry and pharmacology are pure physiology. Clinical application seems entirely forgotten. Just in so far as this edition departs from the original purpose of its author, to such an extent does it appeal less to the practicing physician. On the other hand, as a text-book of physiology, it offers the advantage of brevity and simplicity despite its more than nine hundred pages. For this latter purpose, the reviewer commends it highly.

C. K. W.

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**The Compleat Pediatrician, Second: Completely Rewritten, 1938 Edition, Practical, Diagnostic, Therapeutic and Preventive Pediatrics.** By W. C. Davison, M. A., D. Sc., M. D., Professor of Pediatrics, Duke University, School of Medicine, formerly Acting Pediatrician in Charge, The Johns Hopkins Hospital. Duke University Press, Durham, N. C. Cloth. Price $3.75 by check with order, or for $4.00 on credit.

The second edition of the Compleat Pediatrician is a book that no physician who treats infants and children can conscienciously afford to be without. The author has collected a remarkably vast collection of facts, gathering his material not only from his own experience but eagerly has sought out the fruits of his colleagues' labors incorporating them into his book to form a veritable encyclopedia. The book is easy to handle, the material condensed, and any subject can be easily located and read within a few minutes revealing details of diagnosis and treatment at a time when the physician is most hard pressed for the lack of this information.

Reviewers the world over have highly praised the first edition for its encyclopedic scope, conciseness, and accessibility of pediatric information, and it is a foregone conclusion that the second edition with its many additions of the newer advances in pediatrics which have occurred in the last four years will prove to be even more popular.

The book is only one-third the size of the average textbook, yet it can be safely said that it contains considerably more practical and accessible information in its thirteen chapters than the innumerable pages of an average staid textbook.

The first seven chapters contain a description of diseases peculiar to the various systems of the body, included among which are chapters devoted to orthopedic, urological, neuropsychiatric and endocrine conditions, while the remaining six chapters delve into worth-while laboratory procedures; nutrition, feeding and diets; general, fluid, oxygen, and physical therapy and pediatric nursing; growth, development and child care; and drugs and prescriptions. Herein lies that store of information one has been endeavoring unsuccessfully for years to retain in one's mind but which could not be located when needed. How much parenteral fluid can safely be given to a 22-pound baby in 24 hours? Can glucose solution be given to a child by the intraperitoneal route? Can one give a mother detailed instructions in the preparation of a hot mustard pack or mustard bath?

These and hundreds of similar questions covering every phase of pediatrics are explained in practical detail in Dr. Davison's book. The Compleat Pediatrician should be part of the armamentarium of every medical student, interne and practicing physician interested in the health of children.

J. J. R.

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**Safely Through Childbirth: A Guide Book for the Expectant Mother.** By A. J. Rongy, M. D., F. A. C. S., Attending Obstetrician and Gynecologist, Lebanon Hospital, New York. Cloth. Price, $2. Pp. 192, with 20 illustrations. New York: Emerson Books, Inc., 1937.

Safely Through Childbirth might well have been called safely through womanhood for Dr. Rongy has started his book with two chapters on the anatomy of the pelvis and generative organs, physiology of puberty and development of the fetus. The next chapters are on pregnancy as related to changes in the maternal organism, labor with its phases of management, analgesia and anesthesia and postpartum care. There is a chapter on abortion and extra-uterine pregnancy. The author closes the book with a chapter on the menopause—the end of fecundity. The patient is repeatedly urged to consult her physician, and though at times the discussion may seem more technical than is necessary, it is to be hoped that the women reading it will have a keener appreciation of the responsibilities of their physician. The glossary is complete enough to insure the lay person an understanding of the scientific terms used. The chapter on prenatal care will help the patient to estimate the adequacy of the supervision she receives. It is rather surprising, at this time, to find that the author has omitted to mention the taking of a Wassermann test during the first visits to the physician or the necessity for treatment when syphilis is found. He does mention syphilis in his chapter on abortion but even there does not stress the necessity for treatment to prevent future abortions. The chapter on postnatal care also omits the need of a routine postpartum examination at the end of six weeks though he suggests returning to the physician in event the puerperium is not progressing normally. As a whole the book is very compact and readable and should be of value to expectant mothers.

E. F. D.

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**Pneumonia and Serum Therapy.** By Frederick T. Lord, M. D., Clinical Professor of Medicine, Emeritus, Harvard Medical School; Member of the Board of Consultation, Massachusetts General Hospital; Member of the Massachusetts Advisory Committee on Pneumonia, 1931-1935; and Roderick Heffron, M. D., Field Director, Pneumonia Study and Service, Massachusetts Department of Public Health, 1931-1935. Revised Edition of Lobar Pneumonia and Serum Therapy. 148 pages, 10 figures and 11 tables. New York: The Commonwealth Fund. 1938. Cloth. $1.00.

Since nearly all lobar pneumonias and about one-half of bronchopneumonias are due to pneumococcus infection and since there are many types of pneumococci, any treatment that significantly reduces the mortality rate and can be administered successfully by general practioners is a worth-while procedure. The Massachusetts pneumonia study and service was conducted for five years and 1700 patients with lobar pneumonia were treated by nearly 1,100 physicians. Since physicians handling medical cases will see 2 to 6 cases of pneumonia annually, it is worth while to know what treatment is effective and what is not.

Pneumonia and Serum Therapy is presented

in a short, closely packed factual book in which serum therapy for the types of pneumococci pneumonia, where it is effective, is clearly outlined. The necessity for early diagnosis by laboratory methods is succinctly brought out. It would be well worth the time spent for physicians treating pneumonia to read this book.

W. H. Y. S.

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**Alcohol: One Man's Meat.** By Edward A. Strecker, A. M., M. D., Sc. D., Professor of Psychiatry, School of Medicine, University of Pennsylvania; Chairman of the Committee for Scientific Administration, National Committee for Mental Hygiene; Member, Sponsoring Committee of the National Conference on Alcohol, etc., and Francis T. Chambers, Jr., Associate in Therapy, Institute of the Pennsylvania Hospital. New York. The Macmillan Company. 230 pages. Price $2.50.

Nearly one person out of every four receiving treatment in the widely scattered hospitals for the mentally sick in the United States in 1934 was a victim of alcoholic insanity, and for each of these patients there are known to have been dozens of other victims of alcoholic excess who did not seek haven in these institutions but could be found by a sufficiently diligent searcher in general hospitals, in unlicensed rest homes, in their own homes, and elsewhere.

That is the aspect of the alcohol problem of particular interest to those whose life work it is to treat and, if possible, prevent human illness, whether of the mind or of the body. That is the principal aspect which Dr. Strecker and Mr. Chambers offer the readers of their book.

But it is only a part of the picture they have drawn. They tell about an apparently sharp rise in the excessive use of alcoholic beverages by young people. They quote from an insurance company report, which shows that the proportion of rejections involving "heavy alcoholic indulgence" in the age group under thirty in 1936 was almost three times that shown in 1932. They refer to this company's record of 11.9 rejections in this age group for "heavy alcoholic indulgence" out of every 100 rejections for all causes between April 1, 1931 and March 31, 1932 and compare that record with a rate of 33.7 per cent for the year ending March 31, 1936. Then they remind their readers that "this table includes only cases of indulgence sufficiently heavy to be a factor in rejection."

These authors, who are quick to repudiate any suggestion that they are anti-whiskey crusaders and take their stand with those who reject legislation as a means of ridding society of alcoholism, have assembled a mass of facts and figures showing the part alcohol plays in the national economy and in the nation's mortality rates. It is estimated, they say, that the sale of alcoholic beverages in the United States has now reached a total volume of approximately five billion dollars a year, while the proportion of fatal highway accidents due to the use of alcohol "appears to be increasingly large."

"According to a report from the Coroner of Cuyahoga County, Ohio (including the city of Cleveland), in 110 fatalities, 56 per cent showed the presence of alcohol in dangerous amounts," they wrote. "According to statistics of 37,800 death-dealing motor vehicle accidents, gathered in 26 states by the National Council of Safety, seven per cent of the drivers and 11 per cent of the pedestrains were incapacitated by alcohol."

But figures like these tell only a part of their story:

"There is involved, in many instances, a considerable detraction from the general social efficiency and progress, since, usually, the alcoholic is inadequately working (if he can work at all), at a level far below his capacities. On the positive side, there is the active sapping and undermining of the social structure due to personal inefficiency, economically and socially, of every alcoholized individual. Over and above these weighty, destructive effects are the imponderables, human misery, suffering and degredation, which, if they could be weighed, would weigh even heavier in the balances of life. Indeed, it is true that alcohol presents a very large bill for the meed of pleasure which it gives, and usually it exacts payment to the last farthing! . . . Alcoholic behavior heaps misfortune upon all those who are in contact with the alcoholic, and therefore, of necessity, it reduces human constructiveness and lowers the morale of society. Volumes could be written and have been written which vividly portray the sufferings of the wives and husbands, or the mothers and fathers of those who have surrendered to alcohol. Children who live in an alcoholic environment are frequently so crippled in the development of their personalities that they can never be made psychologically straight and strong again."

About three decades ago Walter Hines Page looked into the hookworm situation in the South and concluded that Southern "crackers" were not lazy or dull, as they had been pictured far and wide, but sick—"as ill as the tuberculosis patients in the Adirondacks." And now Dr. Strecker and Mr. Chambers look at the alcoholic and conclude that he too is sick and therefore undeserving of the scorn often heaped upon him.

"He or she is just as sick as the patient who has tuberculosis or pneumonia, or any other physical disease," they insist. They also place a large share of the blame for his condition upon factors going back to childhood, particularly "a combination of parental spoiling and dominance," which "weave the pattern of emotional immaturity which furnishes a natural background and incentive for dangerous alcoholic indulgence later in life."

As already pointed out, these students of the problem of alcohol are not advocates of legislative prohibition of the sale of alcohol for beverage purposes. They would approach the problem with a program of prevention. The program they recommend is two-fold: (1) "A better and more widespread understanding concerning the dangers of alcohol," and (2) "A wider application of the workable principles of the mental hygiene of childhood."

The language of the present volume is temperate. There is a pleasing and welcome absence of ranting and ill-nature and intolerance, so often found in discussions of the alcohol problem. It is unfortunate that many others do not approach the problem with such balance and sanity.

J. M. G.

## Miscellany

MANY PHYSICIANS AND THEIR FAMILIES WILL "SEE AMERICA" EN ROUTE TO THE CONVENTION IN SAN FRANCISCO

Officials of the Association were pleased to learn from the American Express Company, Official Transportation Agents for the Convention tours, that they have already received a very excellent response from physicians and their families, which indicates that the San Francisco Convention will be a great success. It is recommended that members of the Association who intend to participate in the Convention apply at an early date to the American Express for their tour reservations, as this will assure them of receiving the type of pullman accommodations they desire.

This is the first time that the physicians have been offered the facilities of de-luxe special trains visiting the scenic attractions of the west, at a very nominal all-expense cost from your home city. Traversing a route that contains many wonders, one's particular preferences are bound to be among them. For instance, the Indian Pueblo District with its remnants of an ancient civilization long vanished from this continent. The Grand Canyon offers its grandeur of scenic attractions. Southern California, its glowing, sun-filled cities and orange empires, Spanish Missions, Catalina Island and the Pacific rolling up to the edge of white sands. That is the route to San Francisco and the Convention.

Returning, there is a choice of two routes. One includes the charming cities of America's Northwest: Portland, Seattle, Victoria, Vancouver and the majestic Canadian Rockies and its resorts. Route Two winds through Yellowstone National Park and its world-famous geyser region, through Salt Lake City, and the scenic beauties of the Royal Gorge, Colorado Springs and the mile-high city, Denver.

That is but a rough outline of the itineraries offered to physicians planning to attend the Convention this June. These special train tours are restricted to physicians, their friends and families, and have been made possible through the united interest and support of 25 state medical societies which makes it possible to offer the tours on an economical, all-expense basis. This is an ideal opportunity to enjoy a wonderful vacation with your family and in the company of friends and colleagues in the Association and in other state Societies.

## Truth About Medicines

NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Neoarsphenamine and Metaphen-D. R. L.—Packages containing five ampules of neoarsphenamine-D. R. L. (New and Nonofficial Remedies, 1937, p. 86), 0.04 gm. each, and one bottle (20 cc.) of metaphen solution 1:1,000. Neoarsphenamine and metaphen is proposed for the treatment of Vincent's gingivitis and stomatitis. Abbott Laboratories, North Chicago, Ill.

Mixed Grasses Concentrated Pollen Antigen-Lederle (June Grass, Orchard Grass, Sweet Vernal Grass, Red Top and Timothy, in equal parts).—This product is also marketed in five syringe packages (series D), each syringe containing 3,000 pollen units; and in five syringe packages (series E), each syringe containing 6,000 pollen units. Lederle Laboratories, Inc., Pearl River, N. Y.

Metaphen Ophthalmic Ointment.—Metaphen (New and Nonofficial Remedies, 1937, p. 295) 1:3,000 in an ophthalmic ointment base containing anhydrous wool fat 25 per cent and petrolatum 75 per cent. Abbott Laboratories, North Chicago, Ill.

Mixed Grasses Pollen Antigen-Lederle (June Grass, Orchard Grass, Sweet Vernal Grass, Red Top and Timothy in equal parts).—This product is also marketed in five syringe packages (series D), each syringe containing 3,000 pollen units; and in five syringe packages (series E), each syringe containing 6,000 pollen units. Lederle Laboratories, Inc., Pearl River, N. Y.

Ampoules Mercury Succinimide 0.01 Gm. (1/6 grain).—Mercuric succinimide-U. S. P. (New and Nonofficial Remedies, 1937, p. 288), 0.01 gm., in distilled water to make 1 cc. Lakeside Laboratories, Inc., Milwaukee, Wis. (J. A. M. A., March 5, 1938, p. 741).

Sulfanilamide-Abbott.—A brand of sulfanilamide-N. N. R. (See Revised Supplement to New and Nonofficial Remedies, 1937, p. 27). It is supplied in the form of tablets 5 grains and tablets 7½ grains. Abbott Laboratories, North Chicago, Ill.

Metrazol Sterile Aqueous Solution, 10 per cent.—A sterile aqueous solution containing metrazol (New and Nonofficial Remedies, 1937, p. 301) 0.1 gm. per cubic centimeter, for parenteral injection. Bilhuber-Knoll Corporation, Jersey City, N. J.

Ampule Sterile Solution Procaine Hydrochloride-Squibb 10 per cent, 2 cc.—Each cubic centimeter contains procaine hydrochloride-U. S. P. (New and Nonofficial Remedies, 1937, p. 70) 0.1 gm. in sterile distilled water. E. R. Squibb & Sons, New York. (J. A. M. A., March 12, 1938, p. 815).

## ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following devices have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Wappler Cold Cautery-Scalpel.—A portable electro-surgical unit designed to provide power for electrosurgical procedures as well as to supply light for diagnostic instruments. It is recommended by the firm for such surgical measures as coagulation, cautery, cutting, including underwater cutting, hemostasis and cervical conization. When tried out clinically it was found to be satisfactory for general surgical work. However, it does not appear to produce a true desiccating current. Even when the current is cut down to a small amount and used with only a small needle, it causes coagulation rather than desiccation. Comprex Division, American Cystoscope Makers, Inc., New York. (J. A. M. A., March 5, 1938, p. 740).

Hanovia Ultra Short Wave, Model 2711.—This unit is recommended for medical and surgical diathermy. It may be used with cuff electrodes, air-spaced electrodes and an induction coil. It has a wavelength of approximately 6 meters. Being a cabinet model, the unit is designed for use in hospitals or offices. The firm submitted evidence to show the heating ability of the unit when applied to the human thigh. When tried out clinically by an investigator appointed by the Council, the unit was found to give sufficient heat to warrant the claims made for it by the manufacturer. Hanovia Chemical and Manufacturing Company, Newark, N. J. (J. A. M. A., March 26, 1938, p. 957).

## PROPAGANDA FOR REFORM

Benzedrine Sulfate—A Warning.—Some months ago THE JOURNAL published a critical editorial on benzedrine sulfate. At that time the drug was being used unwisely to avoid fatigue. The drug has been employed for such widely variable conditions as anginal pain, seasickness and apathy. Now it is suggested for weight reduction. While not as toxic as the ill famed reducing agent dinitrophenol, nevertheless its use may be followed by serious consequences. In its recent report on the status of benzedrine sulfate the Council on Pharmacy and Chemistry concluded that in the light of available evidence claims for benzedrine sulfate should be limited to its usefulness in narcolepsy, postencephalitic parkinsonism and certain depressive mental states encountered in institutional patients. The recent publicity on the use of benzedrine sulfate in obesity is based on the latest report by Myerson and his associates at the Boston State Hospital. The use of the drug in obesity is advocated on the premise that in many cases this condition is associated with anhedonia (defined by Myerson as "a diminution, even to the point of disappearance, of satisfactions normally obtained from life activities, and in loss or distortion of appetites and desires"). Myerson believes that these patients have a tendency to eat too much and too often, to nibble between meals not only in an attempt to satisfy the appetite but to escape from their neurosis. He treated the obesity by reducing the caloric intake, and the anhedonia by administering benzedrine sulfate. It may be assumed, therefore, that the drug might fail to reduce weight effectively in the normal person who does not suffer from anhedonia. Even if benzedrine sulfate could be safely and effectively used to reduce weight there is no evidence that it will have any permanent effect on weight. Its use over long periods is certainly not without danger, particularly to the circulatory system. (J. A. M. A., March 19, 1938, p. 901).

# THE JOURNAL

OF

## The Medical Association of The State of Alabama

**Published Under the Auspices of the Board of Censors**

**Vol. 7. No. 12** **Montgomery, Alabama** **June 1938**


## THE TREATMENT OF ORGANIC AND INORGANIC DISEASES OF THE STOMACH*


By
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### INTRODUCTION

The stomach is an organ which is particularly prone to functional disorders. One can readily realize that such is the case when one takes into consideration the fact that at least three times a day, and often more frequently, the organ is called upon to perform its function under the influence of various types of stimuli, sometimes simple, more often complex. At one time there may be only the plainest of foods carried to it, while some hours later the most varied, complex solid and liquid substances may enter its capacious cavern. It may receive food which is poorly macerated, irritating, and mixed with various abnormal fluids. It may be subject to repeated trauma of this type, but it is, strange to say, relatively rare that actual changes in the mucosa develop. Certainly most organic diseases to which the organ is subject have no relationship whatsoever to the type of food ingested or the character of the material which comes in contact with the gastric mucous membrane.

If the character of the food plays a relatively minimal role in the production of gastric dysfunction, on the other hand there is no one organ in the body which responds more promptly than the stomach to psychic stress or to physical strain. The stomach is in close relationship to the sympathetic nervous system. It is motivated in its secretory functions by extremely delicate nerve control and it would be expected and anticipated that mental and physical factors might produce functional disturbances. From the athlete, who is nauseated or vomits after a hard race, to the small, delicate, hypersensitive female, who gags and belches gas after a marital disturbance, the whole gamut may run from physical activity to mental perturbation. Any one of innumerable things may produce gastric upsets, in the big, strong, husky person, temporarily, it is true, whereas in the so-called "neurotic" the effect of the disturbances may persist for days, weeks and months.

### ORGANIC STOMACH DISEASE

It is naturally impossible in a relatively short presentation to do more than sketch the methods of treatment applicable to various types of organic disease of the stomach. It seems to me that it might be a bit more practical, rather than to outline for any organic disease a complete regime, merely to touch the high points in the treatment of these various conditions and to mention briefly what, in my experience, I have found works most satisfactorily in a given disease. Thus, I will not attempt, for example, the detailed treatment of gastric atony, but will merely mention two or three therapeutic procedures which I believe are most efficacious. Do not think that I have forgotten the generally applied methods, such as diet. Bear in mind that I am granting that you and I realize that a person with acute gastritis must obey certain dietary restrictions.

*Atony and Dilatation.* It might be said, before discussing this disorder, that the stomach has two important parts to play in digesting food. One has to do with the musculature of the organ, the other with the secretions. The former may be deranged, as in atony or in dilatation of a chronic nature; the latter in conditions spoken of as "gastritis." Atony, as Rehfuss[1] writes, is an essential weakness of the gastric mus-

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Read before the Association in annual session, Mobile, April 20, 1938.

1. Rehfuss, M. E.: Diagnosis and Treatment of Diseases of the Stomach. Philadelphia: W. B. Saunders Company, 1927.

culature, whereas chronic dilatation of the stomach is the end result, and is a gradual development from the former. Dilatation may ultimately develop as a result of obstruction, but in the first stage there is merely atony. This condition may be activated by a number of factors, not the least important of which are gas swallowing, rapid eating and dietetic indiscretions. Nor is it unusual to find the condition present in any long continued illness, such as tuberculosis, or in people who suffer from focal infection. Fundamentally, it is a question of the treatment of the patient as a whole rather than the stomach as an integral part of that individual. Nevertheless, there are certain therapeutic procedures which may help the impaired muscle. The most satisfactory drug is tincture of nux vomica and the tincture of nux vomica should be used to the point of definite physiologic action. Individuals vary considerably in their response to this drug. Therefore, it is well to individualize, and to work out the satisfactory amount of drug for each person. Begin with a dose of say 1.0 cc. before meals and increase one or two drops a day until the person notices twitching of the eyelid or a slight tendency to muscle jerkiness. Reduce the dose slightly and then hold it there. Tincture of nux vomica may be given in very much larger doses than those given in the tables on dosage in most books. I have had patients start with nux vomica and take as much as a teaspoonful three times a day without gradually raising the dosage up to that point. If the secretions are abnormal, which they may or may not be, add hydrochloric acid, at least a teaspoonful dose in a glass of water, to be taken with the meal. Hydrochloric acid by mouth will not change the acid secretions, but the drug does seem to have an effect on increased pyloric tonicity.

With chronic dilatation, having excluded organic causes, such as chronic pyloric obstruction, again direct the treatment to the patient as a whole, physically. These methods are of extreme value, as are dietary methods. With these patients I have found that frequent, small feedings, plus the nux vomica, plus postural treatment, plus well fitting abdominal support give the best results. In postural treatment I employ the elevation of the foot of the bed, not only by night, but also to be carried out, where feasible and possible, after each of the large meals, the patient resting in the up-tilted bed for at least a half an hour.

*Gastroptosis.* No one will deny that the treatment of gastroptosis is the treatment of a patient who is fundamentally substandard constitutionally. The mere finding by x-ray of a stomach which is ptosed does not mean a thing. Standards vary very considerably. One person with a stomach which, by the x-ray picture, would show a high degree of ptosis might have symptoms, while a second individual with the stomach located much lower might be entirely symptom free. Under any circumstances, again omitting the general care of the individual, which will be taken up in more detail when the functional disturbances are discussed, it might be said that for a time at least the patient will have considerable relief from symptoms by the use of a well fitting abdominal supporter. The most satisfactory one that I have used is the Rose belt, which can be applied easily and which gives excellent support. Rose plaster is ordinary adhesive on a mole skin base. The support is cut out by the physician. It serves as a temporary splint until the patient's general physical condition is built up, sometimes an exceedingly difficult procedure. I have had two or three women who have worn these Rose belts for a period not of months but of years. Another support which I have found very practical and quite comforting is the Gossard corset, which laces in the front and which can be so manipulated that from the umbilicus to the symphysis there is firm pressure, whereas the upper part is loose and does not interfere with breathing.

*Chronic Gastritis.* In this condition, chronic gastritis, there are alterations in the mucosa of the stomach. The acute form is temporary, but nevertheless it may be frequently repeated, ultimately to become chronic. Of course, the most frequent factors responsible for mucosal change are the factors of improper type of foods and improper dietary habits. Usually a chronic gastritis can be handled satisfactorily with drugs. Depending on whether it is an acid gastritis, which is less frequent, or a non-acid gastritis, hydrochloric acid and nux vomica may be given if the latter, alkalies if the former. The dietetic treatment is, of course, the most important feature of the

management of these patients. It is extremely useful to have the patients wash their stomachs out in the morning shortly after rising. This can be done with a minimal amount of trouble or effort after the patient becomes used to the tube. Often a considerable quantity of mucus is washed out by the alkaline lavage water and the patient is quite confortable for the day. Be cautious about the continuous use of these stomach tubes. I have seen patients reduced to skin and bones because they have gotten so much comfort from the use of the tube that they gradually increased their use of it and got into the habit of washing the stomach out after each meal so that practically all that they ate was subsequently mechanically expressed.

*Gastric Ulcer.* I shall make no attempt to discuss in full this extremely common condition, but shall merely point out the results that have been obtained in the Department of Medicine at Tulane where one of my younger associates, C. R. Jones, Jr., has recently reported on the treatment of peptic ulcer with colloidal aluminum hydroxide. I shall quote largely from the paper of Jones[2] in which he recounted his experience with 24 consecutive cases of peptic ulcer. In these 24 patients the period of duration varied from as short a time as four months to as long a time as 14 years. It might be of interest to note that the people who had had their symptoms for a long period of time for the most part had duodenal ulcers, whereas the stomach ulcers were of shorter duration by far.

The diagnosis was made on the history, gastric analysis and the roentgenologic findings. When the diagnosis was established, colloidal aluminum hydroxide was given in doses varying from 4.0 to 8.0 cc., four times a day, given after eating and before retiring. An ordinary soft diet was given, sometimes belladonna and bromides, but no alkalies and no changes were made in the frequency of food ingestion.

The rationale of aluminum hydroxide is based upon the fact that this preparation diminishes acid secretion and the acid gastric content tends to become progressively lower as it is persistently used. It has no effect on the acid-base equilibrium of the blood and its absorption in the intestinal tract is virtually *nil.* The colloidal aluminum hydroxide used by Jones has an acid combining power of 15 to 16 volumes of N/10 hydrochloric acid.

Out of this group of 24 patients, 16 were re-rayed over a period varying from one week to 60 days. Thirteen of these patients, on their subsequent x-ray examination, were found to have no evidence of gastric ulcer. Nine of these patients had duodenal and four had gastric ulcers. However, three of the patients still showed roentgenologic evidence of their condition, but in only one of them, who showed definite scar deformity, was there not considerable improvement. In other words, practically 15 of the 16 re-rayed showed roentgenologic cure or improvement of their condition.

There are a number of other reports on the use of colloidal aluminum hydroxide which are favorable. One, by a group of authors, reported on 110 patients, with only eight per cent failures. These figures are quite striking. Particularly is it to be noted that treatment may be carried on in patients up and about and carrying on their usual daily activities which do not have to be interrupted by frequent feedings, the taking of large doses of alkalies or rest. If subsequent reports are as excellent as those already published, this method will represent a real advance in the treatment of peptic ulcer.

Dr. Jones had some experience in the treatment of acute hemorrhage in the course of ulcer and some experience as well with the acute expressions of the disease treated in the hospital by continuous aluminum hydroxide drip. Thus, in Case 19 of Jones' series, the man was admitted to the hospital with active bleeding. Immediately he was treated as usual for shock, plus transfusion. The continuous gastric drip was started 24 hours later. In seven days he received daily between 250 and 275 cc. of colloidal aluminum hydroxide, diluted to make a 25 per cent solution. In twelve days he was up and about and showed no fluoroscopic evidence of ulceration.

*Cancer of the Stomach.* Here the treatment is entirely surgical. Unfortunately, the disease is recognized in many instances only after it has advanced to such an extent that surgery is helpless. On account of

2. Jones, C. R., Jr.: Colloidal Aluminum Hydroxide in the Treatment of Peptic Ulcer, Am. J. Digest. Dis. and Nutrit. 4:99, 1937.

marked retention, the stomach tube may give comfort for a time, at least.

THE FUNCTIONAL GASTRIC DISTURBANCES

I should like to go into some detail concerning the management of the non-organic gastric disorders, largely because these conditions are extremely common and because usually they respond so well to proper treatment. Do not forget that the functional disorder may be secretory, motor or sensory in type, and frequently it is a combination of two or three of these attributes of the organ.

I want to emphasize particularly the fact that the diagnosis of gastric neurosis, functional gastric disturbances, or even indigestion, should not be made until the patient has had a thorough and complete physical examination and careful study in every way has ruled out organic disease. Do not label gastric complaints as being functional until all of the other evidence shows that there is no basic and organic disease. The organic disease responsible for indigestion may be chronic passive indigestion secondary to organic heart disease with symptoms referred to the stomach, or the indigestion may arise as a result of one or another of the organic diseases of the stomach. The stomach is delicately attuned to the reflexes of disease and may at times be the only organ which presents symptoms. After the patient has been proved not to have organic disease, then and then only should a diagnosis be made and treatment started.

The symptoms are manifold, bizarre and protean in many instances. However, almost invariably sooner or later they will boil down to heart burn, aerophagia or nausea.

By no means are all the people who suffer from nervous indigestion the victims of nervous instability. Mental stress and strain, worry, may occur in the usually placid business man and provoke gastric symptoms. On the other hand, so-called "nervousness" in a person who is very high strung is frequently discovered. Dietary faults must be taken into account. Improper mastication of food, bolting of the meals, drinking many cups of coffee will all provoke indigestion.

*Treatment.* The first step is to make sure that the oral hygiene is excellent and that the teeth are in apposition so that the individual may properly masticate food. Insist that patients eat slowly, taking their time always at their meals.

The next procedure is to build the patient up physically as well as mentally. The former can be done readily, the latter often with difficulty. In order to bring about the first desideratum, put the patient on exercises first thing in the morning, followed by a cold bath or sponge, and provide for more strenuous exercise at least twice a week. More specifically it is advisable to have the patient go through a regular regime of exercise in the morning. This can be done in three or four minutes if the resistant muscle exercises are carried out. In the little woman with poor musculature, the simplest exercise, such as a breathing exercise with the arms outstretched, should be used at the start and then the physical measures can be increased. Specific directions must be given as to how the exercises should be performed. Cold baths may be simply sponges of the neck, chest and abdomen or, better still, a cold plunge followed by a brisk rub-down. The twice-a-week exercises may vary from walking from half an hour to an hour a day, to golf, to exercise in a gymnasium or what-not. The more prolonged exercise is particularly of value, as it may take the patient's mind off him or herself.

*Rest after Meals*: This procedure is to be carried out if nothing else is done. After the two lightest meals of the day, simply sitting down quietly reading the newspaper or merely relaxing should be insisted upon. After the heavy meal of the day, rest in the dorsal position for an hour should be enjoined.

*Diet*: There is no necessity for alterations in the diet which would disturb the usual household culinary arrangements. It is my custom for the first two weeks of treatment to modify the diet to a certain extent so that it is relatively bland and nonirritating. At the end of two weeks, the diet may be increased so that, to all intents and purposes, it is much the same as the rest of the household would take. I like to exclude, particularly in patients with hyperacidity, heavy, coarse vegetables, such as cabbage, cauliflower, Brussels sprouts. I exclude also, for a time at least, those containing seeds, such as tomatoes and eggplant. On the whole the starchy tuberous vegetables are probably the best. Fruits

should be taken in the after part of the meal, and it is best to have them stewed. Orange juice may also be taken. Highly seasoned foods, twice-cooked foods, fried foods, undercooked foods should be avoided for the time being. The soups taken best are milk soups. Oysters should be served without the eye.

There is a great deal of difference of opinion about coffee. I was brought up in a school which was taught that coffee is about the worst stomach provoker that there is in the ordinary American dietary. Therefore, for hot drinks I like the patient to take weak tea or cocoa which is not too rich. Alcohol may be taken occasionally, but not as a regular experience. Tobacco, if used moderately, seems to do no harm. Both alcohol and nicotine are drugs which sometimes have a sedative effect.

*Drugs*: In theory it should be possible to do without drugs because the physical measures are usually sufficient to bring about a cure. However, drugs are of considerable benefit from the psychologic point of view. Patients always seem to want drugs when they come to a doctor, and again they may give considerable symptomatic relief. As a matter of fact, now-a-days in our Charity Hospital patients we rely almost entirely on sedatives. A fair prescription is a combination of tincture of belladonna, sodium bromide and peppermint water, taken after meals, to which sometimes may be added alkalies.

The average patient has an *hyperacidity*, and alkalies will give comfort and relief of this particular symptom. The usual procedure is to order an alkali containing magnesium oxide, calcium carbonate and sodium bicarbonate. The magnesia is adjusted to meet the bowel needs of the patient, a greater amount for the constipated one and a smaller amount for the one who is having normal movements. If diarrhea is present, substitute bismuth subcarbonate for the magnesia. Order the alkalies in bulk and have them take them in teaspoonful doses, preferably an hour and a half or two hours after meals. A nice little touch is to flavor the alkali with oil of wintergreen, oil of clove or oil of peppermint, using whichever flavor the patient prefers. A magnificent gastric sedative effect at the onset of treatment may be obtained from the following prescription:

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|---|---|
| Silver nitrate | 0.25 gm. |
| Extract of belladonna | 0.10 gm. |
| Powdered rhubarb | 1.00 gm. |

These amounts are divided into 15 capsules to be taken a half hour before meals and the silver nitrate is not to be repeated after one week's use. At the end of that time substitute bismuth. Usually it is not necessary to take this prescription longer than one week.

*Aerophagia* is often extremely annoying. Sometimes the patients can control their air swallowing if you explain to them that gas is not made in the stomach unless such unusual conditions are present that there are marked fermentation and delay in the emptying time of the stomach, as when there is an organic obstruction. Explain to the patient sensibly that belching gas is largely a matter of habit and may be obviated if, when they have, as they often do, substernal distress from cardiospasm, they refrain from swallowing air. A very practical method during the course of a "gas attack" is to have the patient hold a cork between the teeth. They cannot swallow and the air cannot be forced down into the stomach. These measures sometimes are of little value. A carminative mixture that has been used for many decades and which facetiously has been called the "U. G. I. Mixture," named after the United Gas Improvement Company of Philadelphia, consists of:

| | |
|---|---|
| Creosote | 0.5 gm. |
| Spirits of chloroform | 10.0 gms. |
| Spiritus ammonium aromat. | 20.0 gms. |
| Sodium bicarbonate | 10.0 gms. |
| Peppermint water, q. s., ad. | 100.0 gms. |

Another very nice carminative preparation, again one which has endured for many years, consists of equal parts of spirits of chloroform, aromatic spirits of ammonia, sherry wine and tincture of cardamom. A practical home remedy during a "gas attack" at night is to put a teaspoonful of soda and a teaspoonful of aromatic ammonia in a half a glass of warm water and take slowly.

*Nausea* is sometimes very hard to eliminate. The old combination of codeine, cerium oxalate and cocaine, given for two or three doses, sometimes is of value. A drop or two of dilute hydrocyanic acid in a wa-

tery vehicle is sometimes helpful.

Dilute hydrochloric acid, of course, is indicated when there is a *low acid content* of the gastric secretion, or if there is no acid, bearing in mind, of course, that there are many people who have achylia without digestive complaint. Suffice it to say about hydrochloric acid that to be of value it should be given in large doses, two or three teaspoonfuls in a glass of water, taken with meals and best taken through a glass tube to obviate possible injurious effects to the teeth.

Tincture of nux vomica has already been mentioned, but it is definitely indicated when there is loss of appetite or when a patient needs some boosting.

### SUMMARY

I have attempted to sketch briefly some of the high points in the management of disorders of the stomach. These measures I have found to be effective and of value in the management of a patient who has either functional disorders or organic disease of the stomach.

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## OBSTETRIC PROBLEMS FROM THE MEDICAL VIEWPOINT*

By
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The subject that has been suggested for my presentation was accepted with readiness and willingness, as it brought to mind the fact that the correlation of obstetrics and general medicine is woefully inadequate and that, despite the close relationship between the two, the obstetrician and the internist divorce the union by pursuing a circumscribed and single track thought in their respective fields of endeavor. There is an intimate bond between these medical practices because, in obstetrics, the dual question, what effect does the pregnancy have upon the disease and what does the disease do to pregnancy, must be considered and investigated whenever encountered.

To discuss the many medical conditions that may be associated with pregnancy would be an undertaking too formidable for the writer; an inquisition that your patience would not tolerate. Therefore, only a few of the more common diseases complicating pregnancy will be reviewed.

*Read before a meeting of the Southeastern Division, Clanton, October 14, 1937.

### TUBERCULOSIS

For years past, and at the present moment, there is lacking a unanimity of opinion as to the effect of pregnancy upon the tuberculous woman. This division of thought is likely to be maintained indefinitely, for the exponents of one dictum, as against those of another, are as inflexible as the followers of our major political parties and are as divergent as the poles. Out of the extremes there must be a compromise. Rest, hygiene and supportive measures are as practical for the tuberculous pregnant woman as such a regime is for any other tuberculous individual. In this connection, perhaps the most important consideration for the obstetric attendant to decide is the matter of willingness and determination of the patient to cooperate and then the mental and economic capacity to do so, even though the spirit is willing. Unless these factors are observed, there is grave doubt that pregnancy should be allowed to proceed. A pregnancy superimposed upon a first type tuberculous infection should not necessarily be terminated, but one associated with a reinfection or a reactivation of the infection could well be interrupted, especially should these two latter conditions arise during the first three months of gestation. Under such circumstances, late pregnancy finds the woman in a serious plight. The tuberculous gravida must receive proper delivery care, and, when in the puerperium, breast feeding should be forbidden. With the fundamental knowledge of the hygienic management of tuberculosis and with the brilliant and satisfactory results obtained from the surgical procedures of pneumothorax, exeresis of the phrenic nerve and extrapleural thoracoplasty—even in advanced cases—the writer does not feel that tuberculosis is a sine qua non for the interruption of pregnancy.

### HEART DISEASE

This discussion will not deal with heart disease in pregnancy from the viewpoint of valvulitis. It will revolve about the cardiac reserve which depends upon the functional state of the myocardium. There is ample authority for the statement that, of all cardiac conditions, rheumatic heart disease is

the most common affliction in child-bearing life; and that congenital defects, syphilis, thyroid disturbances, nephritis and hypertension are of secondary importance in the evaluation of symptoms, except, however, should these produce profound structural changes, as valvulitis and aortitis. In pregnancy there are certain periods in which the strain upon the cardiac reserve is pronounced—in the first trimester when nausea and vomiting are experienced; in the latter part of the last trimester of gestation and in the second stage of labor. The clinician is warned of a lessened and minimal cardiac reserve when the following signs are noted: persistent crepitant rales at the bases of the lungs; enlargement and tenderness of the liver (congestion) and engorgement of the neck veins, especially when the patient is in the standing position; tolerance for exercise is reduced; pain is experienced, tachycardia and dyspnea are present and there may be an elevation in temperature in the presence of an exacerbation of the infection. This roll call of symptoms is pathognomic of failing heart action and is applicable in gravid cardiac conditions from the beginning to the end of pregnancy. In the management of heart cases it is of utmost importance to acknowledge the fact that, in many instances, the cardiac pathology takes precedence over the obstetric equation. In other words, the equilibrium of circulatory disturbance should be established before interference with pregnancy is attempted. The fact that the strain of labor, the incidence of vasomotor shock, syncope following hemorrhage, potential infection, danger of any form of anesthesia, psychic reactions and other factors render the emptying of the uterus—no matter what the route chosen—most treacherous in the presence of a decompensating heart. This dictum holds true in abortions as well as in advanced gestation. When the circulatory disturbance has been stabilized, then the interruption of pregnancy may be considered. The choice of operation should be one that offers the least embarrassment to the heart. If delivery through the normal channel is elected, no second stage should be permitted and throughout the entire course of labor preparation to combat collapse should be immediately available.

What of the cases that begin pregnancy without signs of congestion? Rightly, the medical attendant should acquaint the family of the patient of the accompanying hazard of child bearing and should demand absolute obedience to all instructions. There should be a clear and distinct understanding that, while the patient may come through the pregnancy and delivery apparently unscathed, yet the lick given the heart may register its damage at a deferred period and be the occasion of shortening life. With such contractual understandings, the management of pregnancy becomes the sole burden of the physician. The following should be the approach to the treatment: rest in bed fourteen hours a day and constantly throughout a given time, if deemed advisable; a well balanced diet adequate in vitamin and mineral content; mineral oil for elimination; exercise according to the patient's tolerance; patient must report breathlessness, cough, pain and easy fatigue; fluid intake limited to one and one-half litres in 24 hours; minimum amount of salt; theophylline and theobromine may be given for their dilating and diuretic effects and, finally, studious and frequent prenatal observation.

In leaving with you these abbreviated remarks upon such an interesting subject, let it be stated as a warning that a physician renders a distinct disservice when he overemphasizes a simple heart condition, and, conversely, when he dismisses the significance of a genuine cardiac pathology, whether dealing with the married, or soon to be married, woman. The services of a cardiologist to aid in grouping a gravid cardiac patient according to the classification of the American Heart Association will be the Utopia of the relationship between the internist and the obstetric attendant.

### APPENDICITIS

This is a rather infrequent surgical complication of pregnancy. Due to the varied location of the appendix incident to pregnancy, the diagnosis of this condition severely tests the acumen of the physician. The result of such a situation means the exclusion of other conditions, e.g., salpingitis, broad ligament and ovarian cysts, pyelitis, ureteral colic due to stone or stricture, intestinal obstruction, perforation of stomach or duodenal ulcer, gallbladder disease, diverticulitis, pancreatitis, pneumonia and other abdominal and chest conditions.

In the opinion of the writer, when appendicitis can be established in the early months of pregnancy, operation should be performed. Peri-uterine infections unquestionably influence the safety of pregnancy, and the growing uterus exerts an unwholesome influence upon these conditions. Especially advisable is surgery in appendicitis in pregnancy when a known appendiceal irritation antedated the pregnancy. It would be far better to remove such appendices before the occurrence of conception. Appendicitis in the last three months of pregnancy should be observed very frequently and carefully with the hope of avoiding operation that causes a high fetal mortality.

### DIARRHEA

Entirely dependent upon the causative factor of this condition are the prognosis and treatment during pregnancy. Also dependent upon these same factors is the necessity of associated practitioners. It is the opinion of the writer that an uncontrolled diarrhea in pregnancy is of major significance and that, in such a condition, the problem of interrupting pregnancy becomes a riddle. Seldom is a termination of pregnancy indicated except in cases of ill-treated cases. These furnish the riddle. Most frequently diarrhea results from disturbances in the bowel content or bowel wall, ranging in variety from foods and parasites to ulcers. The best opinion in management endorses a thorough proctologic examination, including a sigmoidoscopic inspection. Without this type of investigation the interruption of pregnancy comes under the specious argument of post hoc, proctor hoc.

In passing, your attention may be directed to the simple diarrhea observed in the spring and early summer, resulting from ingesting vegetables that come from out of the ground, as new potatoes. This condition is readily checked with dram doses of a saturated solution of magnesium sulphate every hour for three doses and a diet consisting of boiled sweet milk and toast. In twenty-four hours the patient is completely relieved.

### DIABETES MELLITUS

With the advent of insulin, this disease, complicating pregnancy, was removed from the classification of desperate situations that, regardless of the disposition made of the gestation, it became a matter of damned if you did and damned if you didn't. Insulin is as effective in pregnancy as otherwise and this statement brings out the fact that the combination of internal medicine and obstetric service is required at this particular period. Diet during pregnancy must meet the physiologic needs of the woman and, when insulin is employed, its use must be predicated upon three major points: (1) the increased metabolic rate; (2) the increased requirement for carbohydrates; and (3) the increased demands upon the kidneys. Diet and insulin must be adjusted to avoid a hypoglycemia on the one hand and an acidosis on the other. Such a formula certainly requires the astuteness of a competent internist and obstetric attendant. A prolonged labor, during which the intake of food is diminished, causes the best laid plans to go haywire. At this time skillful juggling of diet and insulin is necessary and it behooves the medical attendants to outline an emergency program for immediate use. The puerperium may be handled as the prenatal treatment and the child may be allowed to nurse the breast. In the light of present day knowledge, no especial value results from the termination of pregnancy.

### PYELITIS AND HEMATURIA

Pyelitis is not of infrequent occurrence in pregnancy and the puerperium. Here a searching inquiry into the past history will be of genuine aid throughout the prenatal period and, particularly, early in the puerperium.

Patients bounce into the storm and though tossed about by the waves of frequent chills and high temperatures they invariably land in the port of normalcy. There is rarely an indication for the induction of labor, and should the clinician be desirous of emptying the uterus, if he be patient, spontaneous labor will ensue as a result of the local and constitutional reaction.

In the writer's experience, the best treatment consists of (1) intravenous administration of renal antiseptics combined with urotropin by mouth; (2) autogenous vaccine; and (3) cystoscopy with ample lavage of the pelvis of the kidney. Accouchment force should be studiously avoided as there is great danger of transmitting the renal infection into the parturient canal. Deliv-

ery should be accomplished by scrupulously observing a technic that insures a from-within-out or an above-down process being executed.

Hematuria has a more ominous portent and may more justifiably establish the rationale of emptying the uterus. Should hemorrhagic nephritis, malignancy and bladder varicosities exist, the pregnant uterus (especially in late months of gestation) may be a distinct hindrance in the attack upon the source of bleeding. The hydronephrosis of pregnancy, tuberculosis, renal stone and syphilis predispose to hematuria and all or any one of these may make ending the pregnancy mandatory. The management of hematuria differs from that of pyelitis in that the condition is usually based upon a pathology that may lead to invalidism if permitted to remain untreated over a period of weeks. Should palliative measures yield results until the end of gestation, soon after the first four weeks of the puerperium a complete urologic examination should be made, regardless of the symptomatology present. This deferred examination is advisable because of the possible danger of further infection from lochial discharge.

### HYPERTHYROIDISM

Very seldom does a genuine hyperthyroidism complicate pregnancy. The writer can recall only two such conditions in a period of twenty-four years. Its association with pregnancy is no more serious than in any other individual and it may be stated that there is considerable doubt that pregnancy is responsible for a "blow-up," should such occur at that time. The welfare of the patient is not altered, for the worse, by pregnancy. The serious feature of hyperthyroidism in pregnancy is cardiac disease and, should it be superimposed upon heart pathology, the management should be the same as has been outlined under heart disease. Thyrotoxicosis may be precipitated by pregnancy and when this occurs pregnancy is unfavorably influenced and a high fetal mortality results.

The management entails the following: quiet and pleasant surroundings; a diet high in caloric value and rich in vitamines with restricted use of fats; ample sleep and rest; sedation with barbiturates and administration of iodine. Early in pregnancy thyroidectomy is comparatively safe for mother and fetus; late in pregnancy, surgery should be postponed. The real thyrotoxic patient should not be permitted to nurse the baby for obvious reasons.

### HYPERTENSION

This complication of pregnancy is a serious threat because of the manifold ramifications of the disease. There is one inescapable fact that the obstetric attendant must constantly bear in mind and that fact entails the placental changes (abruptio placenta—infarcts) incident to hypertension. During the last trimester of pregnancy these changes are more pronounced and may be the occasion of a fulminating toxemia. Therefore, as soon as a mature baby has been attained, the pregnancy should be terminated, for the sole purpose of protecting the mother from an assault that may be irreparable.

The general management of hypertension should be based upon the reduction of the burden upon the heart and kidneys; removal of foci of infection; stabilization of emotional influences; intelligent dietary with a fairly liberal use of proteins and water and well directed rest. No rule of thumb can be enunciated for the treatment of hypertension, whether it be of an essential type or the type superinduced by pregnancy. It is, however, the invariable practice of the writer to interdict pregnancy in cases of so-called essential hypertension and to advocate sterilization should the patient have two or more children when the condition is first diagnosed.

### MALARIA

This is one medical condition that takes priority over obstetric considerations per se, as it is a fact that a malarial infection during pregnancy, untreated, is more harmful than the use of quinine itself. The general impression that quinine has potent oxytocic qualities is more of a legend than an actuality; however, whatever oxytocic powers it may have, such properties are held in abeyance, when used in malaria, as has been pointed out by clinicians in their broad studies of malaria.

There is very little to say under this subject, except that the infection must receive adequate treatment by whatever plan the individual practitioner may elect. To safeguard the interruption of pregnancy it is

always practical to use opiates in conjunction with quinine, especially in late pregnancy. In early pregnancy, associated with nausea and vomiting, treatment must be otherwise than by mouth.

The writer has never hesitated to give precedence to this infection over pregnancy, with the net result that treatment has not been the occasion of an abortion nor premature labor.

CONCLUSION

These ten conditions, that so frequently upset the tranquility of pregnancy, have been only superficially sketched in this presentation, with simply the high spots having been touched upon. Nevertheless, merely the mention of these diseases emphasizes the significance of the subject, "Obstetric Problems from the Medical Viewpoint." While the writer does not believe that any one practitioner of medicine is omniscient in the general or a specialized unit of medical science, yet he does believe that a concert of clinical knowledge and skill will be productive of creditable and happy end results.

Finally, let it be stated that there is no such thing as authority, except when facts are based upon the axioms of science. Though Oliver Wendell Holmes suspected that childbed fever was contagious, his theory was not authoritative until Lister proved his work on antisepsis. Much of the practice of medicine is individualistic, dependent upon the complexities of the individual patient and upon the capacities of the individual physician. The ill patient does not err; the physician commits the breach in judgment or in technique. Therefore, the multiplicity of medical counsel should be encouraged in the general field of medicine and why not in obstetrics, at the threshold of life—at the outpost of civilization?

1117 S. 22nd Street.

**Postural Evacuation of Tracheobronchial Tree** —Regular postural evacuation of the tracheobronchial tree carried out over a long period of time will lessen absorption of secretion, reduce the odor of the sputum, and limit the cough and expectoration to convenient periods of the day. This treatment will not cure bronchiectasis, but when it enables a patient to work in association with others without odor to his breath and without constant cough which arouses the suspicion of tuberculous disease, it becomes a valuable form of therapy.—*Vinson, Virginia M. Monthly, May '38.*

## METRAZOL TREATMENT OF THE PSYCHOSES*

By
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We, at Bryce Hospital, feel that it is incumbent upon us to report to the medical profession of Alabama from time to time on the progress of psychiatry in general and on some of the work that is going on at your State Hospital for Mental Diseases in particular.

It is a little more comforting, it inspires a little more confidence to learn things from close friends and neighbors than to read accounts in the medical press of scientific work done in distant centers. We all respect the teachings of the masters, but we want the impressions and experiences of those whose hands we clasp cordially and call by their first names.

Within the last two years there has been a remarkable and unprecedented wave of enthusiasm in the treatment of schizophrenia. Spectacular changes have been wrought in psychotics which have compelled the scrutiny of the most conservative and most skeptical psychiatrists.

When Sakel introduced the so-called insulin shock treatment, many of us smiled knowingly as if to say, "I've seen and I have heard of enthusiasts before, rising to the pinnacles of therapeutic popularity, only to be forgotten in a year or two." But to be convinced that here was a remarkable attack upon a common and pitiable mental disease needed only that one actually view the results.

Along with the treatment of dementia precox with the induced hypoglycemia of Sakel has come the convulsant therapy of Meduna, using first a twenty-five per cent solution of camphor in oil intramuscularly and later a ten per cent aqueous solution of metrazol intravenously. Metrazol, as you probably know, was introduced as a heart and respiratory stimulant under the name of cardiazol, and it was later found that large doses given intravenously produced convulsions.

Already in Europe there has developed an intense rivalry between these two forms

*Read before the Association in annual session, Mobile, April 19, 1938.

of treatment, and it will no doubt come to these shores.[1] We have no interest whatsoever in supporting the method of Ladislaus von Meduna of Budapest to the exclusion of the work of Manfred Sakel of Vienna, but we do beg to be allowed to report our experiences with the metrazol method, because it is to this treatment that we have given our time and efforts.

Dementia precox or schizophrenia is a prevalent mental disorder, beginning as a rule in late adolescent and early adult life. It is characterized by a shut-in personality, a withdrawal from normal outside interests in reality and the assumption of pathologic day-dreaming and phantasy life. Delusions are usually present and may be systematized or bizarre. Hallucinations are not uncommon.

It is unquestionably the biggest problem faced today by state hospitals for mental disease. The outlook is unfavorable, recoveries are rare, and the number who show material improvement under the best circumstances is disappointing. Treatment has been nonspecific and more often ineffective.

Meduna,[2] knowing that epileptics rarely presented this schizophrenic syndrome, postulated a biologic antagonism between these two disorders. He reasoned that if an individual having dementia precox was caused to have convulsions the schizophrenic symptoms would disappear.

He was supported and stimulated in this belief by the observations of Nyiro and Jablonsky, G. Müller, A. Glaus and others who studied the concomitance of epilepsy in a few cases of schizophrenia, all concluding that epilepsy militated against the development of the schizophrenic state.

After experimenting with guinea pigs, he produced his first camphor convulsion in a human being in January, 1934. His first report of successful convulsant therapy in schizophrenia was published in January, 1935.[3] He later changed from camphor to metrazol as a convulsant agent and published further studies in July, 1935,[2] and February, 1936.[4]

Since then corroborative reports have been made by Angyal and Gyarfas,[5] Kruger,[6] Scheuhammer and Wiszgott,[7] Sorger and Hofman[8] and Wahlmann[9] on the continent; by Finiefs,[10] and Gillies[11] of England; by Ellery[12] of Australia, and by Friedman and Finkelman et al[14] of this country.

Gullotta[15] reports unfavorably on the results obtained from treating ten cases of dementia precox. However, analysis of his material reveals that he terminated treatment if improvement had not appeared after eight seizures had been induced. His results were all as negative as his therapy was inadequate and his report has some value in emphasizing the need for more prolonged treatment before becoming discouraged.

I am indebted to Dr. Charles F. Read and

1. Wortis, Joseph: Metrazol versus Insulin in the Treatment of Schizophrenia (Correspondence), J. A. M. A. 109: 1470 (Oct. 30) 1937.

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14. Finkelman, I., Steinberg, D. I. and Liebert, E.: The Treatment of Schizophrenia with Metrazol by the Production of Convulsions. J. A. M. A., Vol. 110, No. 10: 706-709 (March 5) 1938.

15. Gullotta, S.: The Treatment of Schizophrenia by Provocation of Epileptic Convulsions. Riv. Sper. di. freniatr., 60: 310 (Dec. 31) 1936.

the Elgin State Hospital group[16] for my initial acquaintance with and observation of the metrazol treatment.

In August, 1937, we began to treat a series of schizophrenics with metrazol. A report now, of course, is somewhat premature as sufficient time has not elapsed to afford adequate followup study, but because of the widespread interest in the subject we feel justified in presenting a preliminary report.

Without burdening you with too many technical details, we can state briefly that treatment consists of injecting a ten per cent aqueous solution of metrazol rapidly into the veins, twice a week, the dose being the smallest amount that will produce a complete convulsion in the patient. Three cubic centimeters for females and four for males is the initial dose. If this amount fails to produce a convulsion, the dose is increased by one cubic centimeter, given the next day or at the next regular time for treatment. If this amount fails, the dose is again increased by one cubic centimeter, and on and on until the satisfactory dose for each individual is determined.

If the patient develops a tolerance to a once satisfactory dose, the amount is again increased by one cubic centimeter, which is usually effective. Amounts as low as three or four cubic centimeters have been found to be effective and doses as large as ten cubic centimeters will occasionally be required. The treatment should be given (a) until the patient shows a remission; (b) as long as improvement is taking place and until there is no further evidence of improvement; or (c) until twenty to forty injections have failed to bring forth a favorable response.

The clonic-tonic-clonic pattern of the convulsion has been minutely described by Finkelman and his co-workers.[14] The reaction begins almost immediately and the convulsion with its prodromal stage takes approximately one minute. During the convulsion the patient is completely unconscious and a slight degree of retrograde amnesia occurs, to the extent that sometimes a patient will not remember the injection itself. The patient does not know that he has had a convulsion. He only realizes that he has been rendered unconscious, though he may remember the feeling of bewilderment that he had in the prodromal stage.

After the convulsion is over the patient is limp a few minutes, then as he regains consciousness he remains confused and becomes quite restless, usually flouncing about in bed for from 10 to 15 minutes. It is usually several hours before the mind clears entirely.

During the convulsion the tongue should be protected by a soft wooden or hard rubber paddle placed between the teeth. After the convulsion he should be kept from falling out of bed or injuring himself during the period of restlessness and confusion.

If there is a tendency toward dislocation of the mandible, proper support with a wide elastic bandage around the chin will prevent this complication.

We have paid particular attention to the cardiovascular system throughout the treatment of our cases. Originally it was our custom to take the blood pressure and count the pulse just before each injection. In a small percentage of cases we encountered a rise in blood pressure of from 10 to 40 mm. of mercury which was not present when the blood pressure was recorded previous to the day of treatment. Likewise in a few cases we discovered an increased pulse rate which was not present in this interval. Both of these findings were thought to be due to the nervous tension and anxiety which was so manifest in certain of our subjects. Consequently, we now complete our cardiovascular checkup on the day before the injection is due and thereby get a fairer estimate of the condition of the heart and arteries.

During the convulsion a rise of from 15 to 50 mm. of mercury is encountered, which subsides to its previous level within a few minutes.

Needless to say a thorough physical examination should precede the institution of the treatment; and infections, and pulmonary and cardiovascular disorders are contraindications.

On April first we had given 948 injections to 63 patients. We have had no fatalities and have not observed any bad effects. Treatment has been completed in 43 cases. Of these, thirty-four are schizophrenics; and the results classified as to duration of psychoses are as follows:

16. Personal visit to Elgin State Hospital, Elgin, Ill. July, 1937.

DEMENTIA PRECOX CASES

TABLE I

RESULTS CLASSIFIED AS TO DURATION OF PSYCHOSES

| RESULT | DURATION 1-6 Mos. | 7-12 Mos. | 1-2 Yrs. | 2-3 Yrs. | 3-4 Yrs. | 4-5 Yrs. | Over 5 Yrs. |
|---|---|---|---|---|---|---|---|
| Apparently Recovered | 5 | 1 | 2 | | | | |
| Much Improved | 1 | 4 | 2 | 1 | | | |
| Improved | 1 | 2 | 3 | 1 | 3 | 1 | 3 |
| Unimproved | | | | | 1 | 2 | 1 |
| Percentage Apparently Recovered and Much Improved | 85% | 71% | 57% | 50% | 0% | 0% | 0% |

The high percentage of excellent results (85%) in individuals whose psychosis had lasted six months or less is in line with the results of other collaborators. The lower percentage of apparent recoveries and near-recoveries, after the psychosis has lasted three years or more, argues well for the desirability of early treatment. The lack of complete failures in schizophrenics of less than three years duration is striking when compared with the complete failures (36%) in those whose psychosis has lasted three years or more.

Of the thirty cases whose psychoses had lasted less than five years, the percentage of marked improvement or remission was 53, which we feel will probably be a fair prognostic estimate for the general run of cases such as will be encountered in the admissions to a state hospital.

TABLE II

RESULTS CLASSIFIED AS TO TYPES OF DEMENTIA PRECOX TREATED

| RESULT | Catatonic Type | Paranoid Type | Hebephrenic Type |
|---|---|---|---|
| Recovered | 3 | 5 | |
| Much Improved | 4 | 3 | 1 |
| Improved | 8 | 3 | 2 |
| Unimproved | | 3 | 2 |
| Percentage: Recovered or Much Improved | 46% | 57% | 20% |

Table II shows 46% of the catatonic, 57% of the paranoid and 20% of the hebephrenic type showing marked improvement or better. Most investigators report a higher percentage of good results in the catatonic, next in the paranoid and least in the hebephrenic type. Perhaps a larger series will put our catatonics in first place.

At this moment we would like to give a few examples of what we have encountered:

J. D. S., a white male, single, age 22, was admitted into Bryce Hospital on August 18, 1937, with a mental disturbance of 8 months duration. He was suspicious, thought people were making a deliberate effort to discredit and persecute him, he felt that his own father had shown unjust preference for the other children. He was seclusive, asocial, tense, and admitted hearing voices talking to him. We diagnosed him paranoid dementia precox. On September 29, 1937, metrazol injections were started. On December 1, 1937, nineteen (19) injections had been given and he was apparently well. He was dismissed three weeks later and has made a very satisfactory adjustment at home.

On September 14, 1937, D. B. F., a white male, single, age 28, came to us with a history of having been disturbed for 5 months. He was composed, superior in his attitude, referred to himself as President of the United States of America, thought he had unlimited means. He said that there were plots and plans on foot to discredit him, that he was being held illegally and that he was thus prevented from marrying a Chinese Princess in Shanghai, which alliance would strengthen the U. S. A., and promote peace in all the world. He was diagnosed dementia precox—paranoid type. On September 22, 1937, he was started on metrazol treatment and, after receiving 15 injections, on November 10 he had apparently recovered with insight. He was furloughed one month later and is now at home gainfully occupied and very grateful to his physicians.

MANIC DEPRESSIVE PSYCHOSES

So far as we have been able to learn, only one psychiatrist has reported using metrazol in the treatment of manic depressive psychoses. Wahlmann[17] reported having treated one such case with three injections and getting favorable results.

While this type of mental disorder is usually recoverable, there is no greater problem than caring for an individual in an extreme manic state with marked hyperactivity and destructiveness, and the resulting bodily exhaustion. Even with an adequate personnel and hydrotherapy, there may be

17. See No. 9.

an occasional fatality and certainly the prolonged extreme cases present an economic feature both to the hospital and the individual. Likewise an individual in extreme depression is often a feeding problem and a potential suicide. The state of melancholia, frequently lasting for months, means psychic pain to the sufferer, anxiety and economic loss to the family and consternation to the physician. Therefore, if one can reduce the duration of illness in even a recoverable mental disorder, one has accomplished something.

It was the presence of such grave problems that led us to use metrazol in nine such cases—seven were in the manic phase, two in the depressive.

Our first case, a white male, age 38 years, who, during his second admission into Bryce Hospital on November 5, 1937, remained in a state of continuous excitement, had to be kept either in a continuous tub or in seclusion. He was nude, noisy, boisterous, distractible, euphoric, filthy, destructive and hyperactive until on November 8 when he was given 3 cc. of metrazol, which resulted in a satisfactory convulsion. When he awoke he was apparently normal, was moved to a quiet ward, he dressed neatly, cooperated and talked sensibly. Two days later he was given one more injection and three weeks later went home well.

Another manic patient showed a response almost identical to the case just recited. A third patient showed a fair response, the results being evident immediately after each treatment, but recovery did not occur until 10 days had elapsed. Then there was a recurrence of symptoms within 8 more days and recovery again after three injections at 3-day intervals, this time the recovery lasting until furlough four weeks after the final disappearance of symptoms.

The remaining four manic cases were each given three injections at three-day intervals and in each case, failing to get more than a temporary and slight improvement, treatment was discontinued.

Two patients having the depressive type of the manic depressive psychosis were treated by us.

The first of these, a white male, age 48, with a depression lasting since November, 1936, was selected because he had shown no tendency toward improvement during his 8 months' residence in the hospital. There was melancholia, suicidal efforts, refusal of food with resulting spoon feeding and marked loss of weight. He sat in one place unless moved or else at times paced the floor in his agitation. He pulled his hair out and ate it and soiled himself regularly. On November 20, 1937, he was started on intravenous injections of metrazol and showed a progressively favorable response until his furlough on January 19, 1938, having received 16 injections. Recovery was complete.

The second and last depressive case came to the hospital on June 18, 1937, at the age of 31 years in his second attack of melancholia. He failed to respond to diversion, occupational therapy and psychotherapy but was very cooperative and appreciative. He remained sad, entertained suicidal impulses, but refrained from attempts in this direction. Seeing schizophrenics on his ward recovering as a result of metrazol therapy, he requested the treatment himself. On January 24, 1938, he received his first injection followed by two others at 3-day intervals, at the end of which time he had apparently recovered. On February 19, 1938, he went home apparently well, happy and light hearted. He has written and visited us since and he is most grateful for our efforts instituted at his own suggestion.

These results lead us to feel that certain patients with affective psychoses will react favorably to metrazol, that results will be almost immediate in such cases and it is, therefore, not unwise to subject such patients to a short period of treatment in the knowledge that the duration of illness will be materially reduced in a goodly number.

### PSYCHONEUROSES AND INVOLUTIONAL MELANCHOLIA

At the present time we have under treatment two cases of severe conversion hysteria and one of involutional melancholia, the latter a man of 57 years of age with a cardiovascular system in excellent condition.

It is too early to give a final report on these cases, but we have some reason to be encouraged.

### SUMMARY AND CONCLUSIONS

Our experience with metrazol compels us to welcome it as an addition to our therapeutic armamentarium in the treatment of certain psychoses. It appears to be rela-

tively harmless. It produces spectacular results in certain individuals, particularly those whose phychoses have been of relatively short duration. We do not consider it to be entirely ideal. We feel that psychotherapy, occupational therapy, diversion and a well ordered environment are as important as before its advent, if not more so. We believe that a schizophrenic whose psychosis has been made to disappear by the use of metrazol has still a schizoid personality and that his final and permanent adjustment depends upon an adequate study of the patient and a subsequent serious and comprehensive effort to give him insight, solve his problems and strengthen his ability to adjust by his own self-understanding. We believe the drug should be given only in hospitals and only by psychiatrists, who are thoroughly familiar with treatment in psychiatry.

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## PSYCHOGENIC FACTORS IN THE MEDICAL HISTORY

By
GROESBECK WALSH, M. D.
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As the importance of the psychogenic factors in disease are being made evident, more interest is being shown in the life-story of the patient. It is from an analysis of this document that conclusions can be drawn regarding the extent to which the individual's emotional experiences condition or create the symptoms which bring him to us for relief. At times the problem is one easy of solution, but in the great majority of cases the emotional factors of importance are carefully guarded by the individual under observation. The care with which such happenings are concealed lends color to the notion that in most instances the patient has some very definite idea as to the connection between cause and effect; that if such emotional experiences are in the subconscious mind of the person under discussion at least they are close to the surface and are well known—well known enough to be concealed in the initial discussions of the problem and brought out into the open only after confidence in the examiner has been established.

How often does the psychogenic aspect enter into the question of diagnosis and treatment? Opinion varies, but from recent contributions to the literature we get the impression that the proportion of psychogenic cases encountered in the practice of internal medicine approximates fifty per cent. Houston[1] states that it comes into being to some extent every time we are brought into contact with a conscious patient. Sullivan,[2] from a study of a group of cases of ulcerative colitis, believes that sixty per cent of the cases were of psychogenic origin. Robinson[3] estimates that ninety-five per cent of gastric and duodenal ulcers have the same genesis. Nissen and Spencer,[4] after an analysis of five hundred cases of arthritis, believe that twenty-two per cent had emotional experiences of sufficient importance to warrant them being considered etiologic agents, and thought that if suitable opportunity were afforded a similar story could have been obtained from many others. Moschcowitz[5] lists essential hypertension, "Graves" syndrome, gastric and duodenal ulcer, cardiospasm, spastic or irritable colon and mucous colitis as of psychogenic origin. Cannon[6] believes that the medical profession has not recognized in a practical way the recent shift in the etiology of disease. Weiss[7] has contributed several illuminating papers upon the influences of past and present emotional experiences upon the complex known as cardiospasm.

Enough can be gleaned from the literature to remind us that in estimating the value of the patient's history it would be wise to pay careful attention not only to the physical contacts to which he has been exposed but to the emotional experiences also. These latter will be more difficult to

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1. Houston, W. R.: Art of Treatment. N. Y., The Macmillan Company, 1936.
2. Sullivan, A. J.: Psychogenic Factors in Ulcerative Colitis, Am. J. Digest. Dis. & Nutrition 2:651 (Jan.) 1936.
3. Robinson, S. C.: Classification of Gastro-Duodenal Ulcers on Basis of Their Etiology, Am. J. Digest. & Nutrition 3: 375 (Aug.) 1936.
4. Nissen, H. A.; and Spencer, K. A.: Psychogenic Problem (Endocrinal and Metabolic) in Chronic Arthritis, New England J. Med. 214: 576 (March 19) 1936.
5. Moschcowitz, E.: Psychogenic Origin of Organic Diseases, New England J. Med. 212: 603 (April 4) 1935.
6. Cannon, W. B.: Role of Emotion in Disease, Ann. Int. Med. 9: 1453 (May) 1936.
7. Weiss, E.: Personality Study in Practice of Internal Medicine, Ann. Int. Med. 8: 701 (Dec.) 1934.

obtain than the purely physical ones. Obviously so, any human being will discuss accidents and diseases of certain classes freely on first meeting with his medical advisers, but will display his hates, fears, and other vital emotions, if at all, only after some common meeting ground has been established.

A number of writers on the subject have remarked that the simple and very obvious questions: "Are you worrying about anything?" "What is it that is worrying you?" will in most cases prove barren of results. The marvel is not that we should win our patient's confidence so infrequently, but that we should win it at all. More adroitly won by some than others, it is a tribute above all to our sincerity and our interest.

In history-taking of this sort it is well to become acquainted with some of the human beings who have played an important part in our patient's life, to hear of the intimate friend who perished the previous week of a coronary occlusion, the cousin who has been tortured by a gastric ulcer. The marital partner of long unions is invariably a witness of prime importance, the parents of solitary children, the mother who has never been reconciled to freeing her son from her apron strings, the husband who brings with him a list of questions regarding his wife's complaints and who enters your answers upon a sheet of paper. These may be matters of importance when the time comes to seek a solution. These individuals have worn facets in our patient's personality and have played no small part in molding and conditioning his character.

Physical ugliness in women and inefficiency in men are great breeders of disease. They represent causes of frustration which may be apparent to the observer, but whose existence will never be admitted by the victims. No one can observe sick humanity for any period without being profoundly impressed by the part which their mirrors play in the lives of our patients.

Men and women bitterly resent the idea that any of their ailments are due to what they term their "imaginations." It is this attitude which has poured a flood of gold into the pockets of clever quacks who are quick to see and capitalize this very human feeling. The quack finds some physical cause for his patient's complaints, and he wastes no time about doing so. The patients seek this form of advice because it represents what they want to believe. The idea that they have imagined any of their pains and ills means to them that they have engaged in some sort of fraud upon their intimates. It tends to convict them of cheating or being willingly ill. In a word it expresses the exact and painful truth. They fight against the full story of their disability, as the drug fiend fights against withdrawal of his opiates, and for the same reason.

We shall never proceed far in the estimation of psychogenic cases until we realize that a large proportion of sickness is motivated by very definite reasons. We should pay close attention to this fact and endeavor to form some idea what these reasons are.

In the main in this type of patient they fall into two classes: things which are sought, and things which are avoided. In the first class are all those various circumstances which tend to make the sick person a matter of interest in his environment, to his intimates, which win him consideration on account of his sickness or weakness and which give him a place of prominence in his community he can obtain in no other way. Through the peculiarities of their sex we believe that this type of motivated sickness is more common among women than men. The negative causes which produce sickness are those associated with some form of avoidance. Fear plays the greatest part in this collection of episodes. They seek the sick-bed and advice of the doctor, and the development of all sorts of disabilities because they wish to avoid something infinitely more distasteful to them. They are seeking to get out of a crisis, and they take the easy way. If we can accept the truth of Menninger's[8] statement that surgical operations which entail so much pain and suffering are frequently undergone because the patient fears the operation much less than he fears some approaching event in his life, we may obtain some idea as to how frequently mere sickness, which is in no way comparable to the dangers or pain of a major operation, is turned to as a means of escape.

Patients will go through untold amounts of pain and suffering to justify their posi-

8. Menninger, K. A.: Polysurgery and Polysurgical Addiction, Psychoanalyt. Quart. 3: 173 (April) 1934.

tion before the world and to lend reality to their sickness. Nowhere in our literature is to be found a better understanding of these struggles to insist upon the reality of their position than in the papers of Weiss.[7] He is frank enough to say that the patients' insistence upon a material sickness is their solution of their own problem, and if we have no better solution which we can make effective, then we had best leave the patients with their own. However unfortunate the end result of their struggle may appear to us, it may have been the means of saving them from further mental and physical descents, from dementia or self-destruction.

From the evident complexities of the matter we can surmise that physicians will be at work, attempting to learn the relation between spiritual cause and physical effect long after the cancer and immunity problems have become open books. No doubt we shall make many crude mistakes, as we attempt in an unfriendly atmosphere to determine the true and underlying cause of our patients' withdrawal from the responsibilities of life. In justice to them and ourselves as well, we believe that a forward step of no mean importance would be made if we approached each problem of disease, asking ourselves the question: "What motive lies behind this man's sickness?"

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**Injection Treatment of Hemorrhoids**—The kind and strength of the solution, the amount to be injected, and the point or method of injection are matters upon which difference of opinion exists.

There are two more or less standard solutions: carbolic acid varying in strength from 5 to 20 per cent, suspended in glycerine and water or vegetable oil; and quinine urea hydrochloride 3 to 10 per cent in aqueous solution. Various other solutions have been advocated.

If carbolic acid (5 to 12 per cent) is to be used and the injection is to be made into the center of the hemorrhoidal mass, glycerine and water are the vehicle of choice and the amount to be injected into each hemorrhoid is to be measured in drops (3 to 10 minims). If the injection is to be submucuous, a vegetable oil is the preferred vehicle and the amount to be injected is more and is to be measured in cubic centimeters (1 to 6 cc.).

Whatever formula is used, the object of the injection treatment is to produce by irritation with a chemical solution sufficient fibrosis to obliterate the network of dilated veins forming the hemorrhoidal mass, thus causing it to shrink, but not sufficiently to cause sloughing of the tissue. It is better to inject too little solution than too much, as too large an injection predisposes to sloughing.

Only simple internal hemorrhoids without complications are suitable for the injection treatment.—*Pruitt, South. M. J., June* '38.

**Infections of the Fingers and Toes**—One of the most frequent surgical conditions which the railway surgeon has to treat is infections of the hands and feet—infected fingers, minor infected wounds, and similar conditions which, if left alone or badly treated, may become serious. One of the most disabling and most difficult to treat successfully is infections around the finger nails. This usually arises from some unnoticed injury at the corner of the nail. If left alone, the infection extends along the nail border and into the soft adjacent tissues until the entire end of the finger is swollen, infected and very painful. If seen before there is an extension of the infection, the best thing to do is to anesthetize the infected area and excise the focus with a small pointed cautery. If this is done thoroughly, the wound heals without extension of the infection and within a few days the patient is back on duty. If the infection has extended far enough to involve the fatty tissues along the side of the nail, even into the soft tissues of the entire finger and around to the opposite side of the nail, with deep infection of the root of the nail as well, the treatment is an extension of the cautery incision. It is, however, rather radical in that the cautery point should extend the incision completely around the base of the nail down to the deeper tissues, except in front, even to the periosteum, being certain to open the area of infection thoroughly. This wound does not close and needs no packing. The main point to emphasize is that the cauterization should be complete and deep enough to reach the base of the infection. In doing so there is little or no danger of injuring the matrix or the base of the nail. In extensive infections, damage to the matrix of the nail may have taken place before the patient was treated; in such instances, the treatment outlined will prevent further extension of the disease process and limit extension.

A necessary after-treatment is the continuous application of moist hypertonic salt solution; about 3 per cent has given me the best results. The frequent change of dressings is unnecessary. This solution should be kept hot and applied often. After trying many different methods of treating these infections, I have abandoned all others. The principle involved is an effort to destroy the area of infection at one stroke, leaving a fresh wound to heal.—*Aynesworth, Texas State J. Med., May* '38.

THE JOURNAL
OF THE
Medical Association of the State of Alabama

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Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.

Office of Publication
519 Dexter Avenue ..... Montgomery, Ala.

Subscription Price ..... $3.00 Per Year

June 1938

## CARCINOMA IN YOUNG PEOPLE

"The old concept of cancer as a disease highly selective of the latter span of life is undoubtedly a factor that militates to no small degree against proper recognition of this disease. Furthermore the seeming tendency of cancer to manifest itself to an increasing degree during the earlier decades of life is a fact calling for more emphasis than is laid on it in current literature. For these reasons we have made this study of the material at the Barnard Free Skin and Cancer Hospital, where, since 1908, there have been 134 patients between 8½ and 31 years of age in whom the diagnosis of cancer was confirmed by microscopic examination."

"This paper treats of carcinoma alone in patients of 30 years or younger. Sarcoma and other malignant conditions have not been included." These sentences are the opening lines of the recently published study of this subject by Hall and Bagby[1] of St. Louis. The authors are fully aware of the difficulties sometimes encountered even by the most expert in the diagnosis of cancer and have included in their report only those cases which have been determined by microscopic examination.

The youngest patient in the series was an 8½ year old girl who had xeroderma pigmentosum with carcinomatous changes (grade 1 squamous cell carcinoma). The authors tell us that at their clinic during the past five years 7.4 per cent of the patients with proved carcinoma of the cervix were in the first three decades of life and that 4.3 per cent of the breast cancers occurred in the same age period. We are further informed that "the grading of the microscopic sections, the symptoms and duration are about the same in persons of 30 years or younger as in older persons." And many will doubtless be surprised to read that "sarcoma is generally considered to be more frequent in young persons than in older ones. However, at this clinic, regarding the actual number of cases, carcinoma is more frequent in the first three decades of life than sarcoma."

Improved diagnosis and better treatment have been revising many former concepts of malignancy and accurate studies, both clinical and statistical, such as the St. Louis investigators have given us, are the means by which our knowledge is advanced.

The authors say in conclusion that "the main purpose of this paper is to reemphasize the all important fact that carcinoma can and does occur in persons 30 years old and younger in practically all anatomic locations. The age of the patient must not influence one in procrastination and 'watchful waiting.' The results of treatment in young persons, as in older ones, depend on early diagnosis and adequate treatment."

1. Hall, Norman and Bagby, James W.: Carcinoma in the First Three Decades of Life, J. A. M. A. 110: 703 (March) 1938.

## STUDY OF MEDICAL CARE

The Board of Trustees of the American Medical Association recently adopted resolutions designed to assist and encourage state and county medical societies to collect information concerning medical needs and to formulate preferable procedures to supply these needs in accordance with established policies and local conditions. The information, to be collected on forms already furnished the several societies, is to enable county medical societies more easily and accurately to judge the completeness or insufficiency of the local services and facilities for medical care, both curative and preventive.

The Association's Committee on Public

Relations in recent annual report expressed itself as follows regarding the study:

"The American Medical Association is now making a most comprehensive study of need and supply of medical care throughout the United States. This is the first and most complete attempt to answer this question. The answer must come through the cooperation of all individuals, agencies and institutions which have either supply or need of medical care. The physician must not only furnish his own personal information but insist that all agencies, individuals or institutions in his county complete their questionnaires. This is the only way to get direct and complete information on the problem which affects professional, economic and social welfare. The American Medical Association has been called on to present facts. As a part of that organization, let us give it our cooperation."

The State Board of Censors in its 65th annual report likewise voiced its interest in the study. It expressed itself as follows:

"The Board is quite mindful of the fact that this survey, if competently and painstakingly done, will entail no little effort on the part of the membership of each county medical society; yet it also feels that the knowledge gained by local medical groups through such a first-hand study on their part should prove tremendously helpful in efforts to offer constructive suggestions looking to workable solutions."

The Secretary of the Association bespeaks the earnest application of county medical societies to the study.

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# *Committee Contributions*

## PUBLIC RELATIONS

### MEDICAL REHABILITATION PLANS UNFOLD

Action by the Association in recent annual meeting, amending one of its ordinances in such way as to render ethical contractual relations between governmental agencies and county medical societies for the medical care of certain groups of the population, opens the way for county medical societies to proceed with arrangements in keeping with the provisions set forth therein. Already certain county medical societies—Butler, Sumter and Tuscaloosa—have worked out plans in harmony with the recently adopted amendment, which await final approval by the State Board of Censors. Previously the Coffee County Medical Society had set up a plan to attain the same end, which plan, with certain modifications, will likewise conform to the ordinance and awaits the Board's approval. The problem will be met in part in Wilcox, also, in the immediate future.

As provided by the ordinance, any agreement entered into with a governmental agency shall be approved first by the medical society of the county in which it is to operate, and then by the State Board of Censors. It is in the interest of uniformity that a standard agreement be entered into, in so far as possible; and it is with this thought in mind that the plan set forth below is suggested as a guide. The decision as to whether any agreement is to be entered into with the federal agency concerned rests with the members of the individual county medical society. Likewise, the details of such agreement shall be in harmony and in keeping with the principles incorporated in the present ordinance regulating contracts. It is therefore suggested that all agreements entered into be studied and considered in the light of the ordinace as a whole. It is believed the following plan meets the requirements of the ordinance:

PLAN ADOPTED BY THE MEDICAL SOCIETY OF ..... COUNTY FOR THE MEDICAL CARE OF THE CLIENTS OF THE F. S. A.

In keeping with the amendment of the ordinance governing contract practice, adopted by The Medical Association of the State of Alabama on April 21, 1938, the Medical Society of ..... County agrees to cooperate with and assist the Farm Security Administration of Alabama in an effort to make available to its clients reasonably adequate medical service, provided the stipulations herein outlined are adhered to:

1. The Farm Security Administration agrees to lend to its clients participating in the plan a sum of money varying from $..... to $..... per annum depending on the size of the family, such sum having been agreed upon in conference between said County Medical Society and representatives of the Farm Security Administration.

2. The Farm Security Administration agrees to place in the hands of a trustee all funds loaned to families for medical care; said trustee to pay for medical services rendered by physicians within the limitations of this plan.

3. All funds available for medical care under this plan may constitute a pool, to be divided by the trustee into twelve equal parts; and therefrom bills from participating physicians shall be paid on a pro rata basis in so far as the amount for a given month will permit. Funds not expended in any month shall be carried over to the succeeding month. In the event a designated amount is set apart for emergencies, unusual situations and hospitalization, as provided in the next succeeding paragraph, this also should be similarly divided and disbursed. If, at the end of the period of the agreement, any funds re-

main, they shall be prorated among those physicians (or hospitals) having unpaid claims.

4. The Medical Society of .....County reserves the right to direct the trustee to set aside a designated sum for emergencies, unusual situations and hospitalization; and, in the event such right is exercised, the distribution of total funds shall be in the ratio of ..... per cent for medical care to ..... per cent for emergencies, unusual situations and hospitalization.

5. All physicians of ..... County who are willing to render service to the families embraced in the plan and under its provisions shall have the right to participate. Proper officers of the .....County Medical Society agree to furnish the local supervisor of the Farm Security Administration a list of physicians in the county who have expressed a willingness to participate; and the supervisor shall, in turn, supply all families included in the plan with a roster of such physicians.

6. Each family shall have the right of choice of physician from such list.

7. Medical services provided by this plan shall embrace such services as are customarily performed by the family physician in the home of the client or in the office of the physician, including immunizations, obstetrics and ordinary drugs usually dispensed by the physician.

8. The schedule of charges for services shall be on the basis of the usual fee for similar services rendered persons of moderate means in the same community.

9. Each physician participating agrees to render such service as in his opinion is necessary; and to submit to the trustee at the end of each month an itemized statement of the services performed and the charge therefor.

10. In the event a question is raised by the local supervisor, the trustee or a client, concerning the statement rendered by any physician, it shall be adjudicated by the County Board of Censors, as provided in the ordinance of The Medical Association of the State of Alabama governing contract practice. In the event clients make excessive demands on physicians for unnecessary services, such fact shall be reported to the local supervisor who shall consider this fact in judging such clients' eligibility for further benefits of any character from the Farm Security Administration.

11. Physicians of .....County participating in the plan agree to render service for the period of the agreement, not exceeding one year, even if funds are exhausted priod to the expiration of the period.

Adopted (Date) .... President ..... Secretary.....

Conference had with officials of the Farm Security Administration indicates that no other counties will be approached by them during this calendar year, they proceeding on the assumption that the plan is experimental and should become fairly well established before being engaged in in other portions of the state. If hopes are realized; then it is likely that many county medical societies will be approached during the closing months of the year looking to the inauguration of agreements next January 1.

# TRANSACTIONS OF THE ASSOCIATION

## 1938 SESSION

### TRANSACTIONS OF THE ANNUAL MEETING OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA, HELD AT MOBILE, APRIL 19-21, 1938

**First Day, Tuesday, April 19**

The Medical Association of the State of Alabama convened in the ballroom of the Battle House and was called to order at 10:00 A. M. by the President, Dr. E. S. Sledge of Mobile.

Invocation was offered by the Rev. Warner DuBose, D. D., Government Street Presbyterian Church, Mobile.

Addresses of welcome were delivered by Dr. D. T. McCall, Chairman, Board of Revenue and Road Commissioners; and Dr. H. B. Dowling, President of the Mobile County Medical Society.

President Sledge read his message, which was referred, without discussion, to the Board of Censors. The message follows:

#### *The President's Message*

*Fellow Members of The Medical Association of the State of Alabama:*

It has been but a year since you honored me signally by choosing me as your president, and in a way that was tantamount to naming your president by acclamation. It is with a feeling of great humility that I look back over the past twelve months and report to you that insofar as concerns our Association and its affairs the year has been a successful one. The vice-presidents of the various districts have shown marked interest and activity in advancing scientific and social functions in their respective divisions. The Department of Health has expanded its organization and usefulness under the able direction of the Board of Censors and our efficient State Health Officer. The Alabama system of organized medicine moves forward to ever greater distinction and to a higher order of service to our people.

In these days of social, economic and political unrest the practice of medicine must of necessity be involved and influenced. With this in mind there are several matters that I feel impelled to bring briefly to your attention.

### HOSPITAL INSURANCE

Insurance to provide funds for hospitalization of the individual has been offered by many insurance companies for many years with no protection to the hospitals, the money being turned over to the insured. At the 1935 meeting of the Association here in Mobile a plan of hospital insurance was approved by this body; the plan adopted brought the insurance under direct control of the State Bureau of Insurance and the State Board of Censors; this required cooperation between and protection for insurance company, hospital and insured. The scheme is understood poorly by many physicians of our state and is the subject of frequent and much debate. In the opinion of your president the present type of contract is open to one very serious criticism. Provision is made for laboratory work and under certain conditions for x-ray work. Most hospitals have the laboratory and x-ray work done or interpreted by physicians. A priori the physicians who do such work must be and are business partners of the hospital. Their work is of a professional nature and their partners should not be permitted to contract on an insurance basis for such service as they give the patients through the hospital. All professional services by licensed practitioners of medicine should be eliminated from these contracts. Otherwise they may just as well include the surgeon, the internist, the obstetrician, etc. Are you ready for that? I do not think so.

### MATERNAL WELFARE

Our State Department of Health is to be commended for further advances in its educational program for the instruction of mothers in prenatal care as well as in matters pertaining to the early months of motherhood. In this way only will a large group of underprivileged women be reached, tending to safeguard their health and to lessen infant mortality. This service should be of inestimable value to the practitioner of medicine working among such people.

### FEDERAL AID FOR MEDICAL CARE

Just so long as the present policies of the National Administration continue, there is likely to be some allocation of federal funds for direct medical care. There is a disposition on the part of those officials handling these funds to cooperate with organized medicine. Prayerful and mature consideration of methods of execution of these plans is essential that such funds reach the physicians in an ethical manner and be not wasted as has been the case with so much money intended for other forms of relief.

### DRUG ADVERTISING

At present there is no greater menace to the health and even to the life of the insufficiently informed American citizen than the flagrant advertising of patent and proprietary medicines over the radio, in the daily press and in some periodicals. These procedures are backed by the manufacturers and executed by the very drug stores that are expected to cooperate with the legitimate practitioners of medicine. It would seem that nearly every drug store clerk in our state is practicing medicine over the counter and furthering the purely financial plans of the makers of such nostrums. As soon as this sort of skin game plays out with one preparation there is a new one to take its place. The "motif" of this nauseous practice is, "The public be damned, get the money!" The attitude of the medical profession is about as what Mark Twain said concerning the weather: "There is much said about it but nothing done." Is the medical profession treating the public fairly? I vote "No." There is but one remedy, namely, an active counter-advertising program over the radio and in the press, solely to educate the public as to the possible dire consequences for the individual. The Federal Government eliminated much of the direct hazard from these nostrums by the pure food and drug regulations. Will the medical profession eventually *properly* interpret the code of ethics and officially and logically explain to Mr. John Q. Public the dangers of this thing and make the druggists realize they should have an obligation for decent and fair sales tactics toward their customers? Our health system needs a publicity bureau to carry on an efficient, energetic and vigorous campaign of advertising. Our health department has done marvelous work in preventive medicine; it should do equally well by the sick man, woman or child, thus discharging the second half of our obligation to the public.

### STATE MEDICINE

The Frankenstein of state medicine has been evolving slowly for many years in the face of a supine attitude on the part of the medical profession, engendered by fear and confused by ethics. The radiance of the idealism and the altruism in the tenets of the Oath of Hippocrates has been dimmed by the shining figures in the ledger. The cost of medical education and of medical equipment has forced the attention of the doctor rather too far in the direction of commercialism and competition. Doctors grumble among themselves about the danger and evils of state medicine, thinking and talking too much about the harm to the business of medicine. Is it any wonder we are accused of belonging to a medical union or a medical trust? The matter is debated in organized medicine in terms of ethics and medical practice acts. The public hears little or nothing of the evils of state medicine as applied to the individual citizen. The American Medical Association has made a brave beginning in the education of the citizen to protect himself against quackery or inadequate medical service. It is high time that our Association throw off the shackles of provincialism, interpret its ethics in consideration of the changing order of things, inform the public of our state through adequate channels of the danger to our citizenry of controlled medical service of any kind. It is unfortunate that state medicine in some form is openly advocated by certain physicians and surgeons of

our country who are firmly ensconced in protected positions with educational institutions and organized medical centers and who are grossly ignorant of the problems of the general practitioner of medicine and of the medical needs of the average citizen at home. Their position lends emphasis to their expressions. Our citizenry at large does not realize the speciousness of their arguments. It is equally unfortunate that there are too many doctors within and without organized medicine that lose no opportunity of raising their professional incomes by methods none too carefully weighed in the balance of ethics or consideration for the welfare of the patient. Reference has been made already to the necessity for educational contact with the public. Our Board of Censors has approved the principle of extension courses in postgraduate medicine for the doctor who must stay close to his home. This should be developed to a plan to keep these men fully abreast of the advances in the principles and practice of medicine.

The doctors must take advantage of every educational opportunity in order that their patients may be given the best service obtainable. Each must rigorously scrutinize his methods and studiously avoid any procedures that have a flavor of faddism, quackery or charlatanism. Each must regulate meticulously his relationship with his patient and his fellow doctor that he may recapture in full measure the slowly failing confidence of the public in the intent and methods of the legitimate practitioner of medicine.

Should state medicine come, its advent can be explained alone by the short-sightedness of the medical profession in stressing too much the commercial phase of practice and in thinking too much of the prerogatives of a doctor in terms of divine inheritance. We must never forget that we may have rights and privileges to no greater or to no lesser extent than that permitted by public opinion. Neither force nor obstructionistic activities on the part of the medical profession can prevent state medicine. So long as the truly American system of government may last and so long as our Constitution may operate to establish and maintain an individual consciousness, it logically follows that each American citizen should have the right of free choice of his lawyer, his church or his physician. Therefore a united medical profession, kept fully prepared and properly self-controlled, need have no fear of state medicine so long as the general public is kept conscientiously informed and we, in turn, live up to the ethics and high traditions of our profession.

The above discussions represent careful and, I hope, impartial observation and thought over a period of almost thirty years. I offer them to you for what you may consider them to be worth.

Again I beg leave to express to you my deep sense of gratitude for the honor and distinction you have conferred upon me.

## REPORTS OF OFFICERS AND COMMITTEES

The reports of officers and committees were received, each referred in its turn, without discussion, to the Board of Censors. These reports follow:

### *Report of Vice-President Salter*

Northeastern Division

The present meeting of the Association brings to a close eight years of service on my part as Vice-President of the Northeastern Division. Two meetings have been held in the division during the year.

The first was at Guntersville on October 13, 1937, with essayists as follows: Dr. John W. Boggess, Jr., Guntersville; Drs. W. G. Harrison, Jr., D. C. Donald, M. T. Davidson and M. Y. Dabney, Birmingham; and Drs. B. F. Austin and J. J. Repa, Montgomery. Forty-five members of the Association were in attendance.

The second meeting was held at Roanoke, March 15, 1938. Contributors to the program were Dr. H. L. Mueller, Opelika; Drs. W. G. Harrison, Jr. and Seale Harris, Jr., Birmingham; Dr. J. M. Kimmey, Anniston; and Dr. J. O. Finney, Gadsden. Forty-eight members were present.

During the eight years that it has been my privilege to serve as Vice-President of the Northeastern Division, twenty-nine meetings have been held; one hundred seventy-four papers have been read; and approximately fourteen hundred sixty-five members have availed themselves of the opportunity to be participants. The papers were all educational and instructive. I am appreciative of the cooperation that has been given me, and I am especially grateful to the physicians who have given of their time and talents to make the meetings a success. I bespeak the same cooperation for my successor.

### *Report of Vice-President Hayes*

Southeastern Division

I make the following report as Vice-President of the Southeastern Division. Two meetings with excellent scientific papers were held during the year. The first was at Andalusia on July 22nd, 1937, with the Covington County Medical Society as host.

Essayists included Dr. N. B. Cannady, Dothan; Drs. G. O. Segrest, J. M. Weldon, R. P. Lester and E. S. Sledge of Mobile; and Dr. Brannon Hubbard of Montgomery.

Following the scientific discussion the meeting adjourned to the Country Club for luncheon.

The second meeting was held with the Chilton County Medical Society at Mitchell Dam on October 14, 1937, with the following as essayists: Drs. E. M. Mason, Cecil D. Gaston and J. R. Garber, Birmingham; and Dr. F. W. Riggs, Montgomery.

This was a worth-while gathering and quite well attended. A luncheon was served at noon by the Chilton County Medical Society.

### *Report of Vice-President Smith*

Northwestern Division

It is a pleasant duty to render you a report of the activities of the Northwestern Division, its

component medical societies and myself, as its executive officer. I am proud of the work that we have done during the past year, and of the progress that we made over the preceding year. There is an increased interest in organized medicine, which is reflected both in the society meetings and in the meetings of the division. There seems to me to be an undercurrent of greater willingness to abide by the rules and ethics of our Association, and to attempt to stamp out some of the practices that have been creeping into our relations with the public. I have been in two medical meetings this year in which colored doctors have been invited to attend the scientific lectures; and Jefferson County has refunded to the Mineral Valley Medical Association two-fifths of the fees paid by the colored physicians in that county. It is interesting to note that Walker County, the first to have a full-time county health unit, and Bibb County the last to do so, are in this division. And from personal observation I can say that the men in Bibb County are making up for lost time.

As required by the Constitution we have held three meetings. The June meeting was held at Decatur, the Morgan County Medical Society acting as host. Fifty-three doctors were present. The second meeting was held in September at Russellville with the Franklin County Medical Society as host. Fifty-five were registered at this meeting. The final meeting, held at Tuscaloosa in January, was the climax for the year. Practically all the men on the program have been or are now connected with the University either as students or teachers. Our guest speaker, Dr. George T. Pack, a former faculty member, made a special trip from New York to give us a lecture of Jerome Cochran Essay caliber. We were royally entertained by the University of Alabama Medical Alumni Association at luncheon; and then at night the Tuscaloosa County Medical Society gave us a fine banquet. About one hundred and seventy-five doctors and visitors were present. And it was a real homecoming for a great many of us.

I have visited all sixteen of the County Medical Societies in this division. Some have been visited more than once, while one was only visited at the time of the division meeting. I have attended my own society meetings every month and, in addition, the Southern Medical Association and the Southeastern Branch of the American Urological Association. All county meetings have been well attended and all counties are maintaining a vigorous growth.

The Walker County Medical Society has requested that I present to the Association the idea that the Committee on Public Relations study the feasibility of the medical profession of this state carrying its own malpractice insurance.

I should also like to suggest that the work of the Committee on Postgraduate Study be broadened to include the fostering of scientific exhibits at our meetings; and that all members, either as individuals, groups or as a medical society be encouraged to present exhibits.

It is suggested, further, that this Association go on record as favoring the inclusion of at least one active practitioner of medicine on the board of trustees of our state educational institutions. The need for this is quite apparent.

## *Report of Vice-President Coxwell*

Southwestern Division

In making the following report as Vice-President of the Southwestern Division, I want to say first that I appreciate the cooperation extended me the past year by the members of this division. They have been very generous in their attendance and have shown great interest.

Two meetings were held during the year, the first at Monroeville on July 21, 1937 with about 100 members and visitors present. Papers were contributed by Drs. E. S. Sledge and J. D. Perdue, Mobile; Drs. J. S. Turberville and H. L. Bryans of Century and Pensacola, Florida, respectively; Dr. D. C. Donald of Birmingham; Dr. W. F. Harper, Selma; and Dr. P. M. Hoffman, Pensacola. Following the meeting, dinner was served at the Legion Club House.

The second meeting was held at Brewton on January 28, 1938, with the Escambia County Medical Society as host. Essayists included Dr. Cecil Gaston of Birmingham; Dr. Marcus Skinner, Selma; Drs. J. Mac Bell and F. T. Boudreau, Mobile; Drs. J. I. and J. K. Turberville, Century, Florida; and Dr. J. O. Lisenby, Atmore. Adjournment was followed by a fish fry at Camp 31 north of Brewton, which was enjoyed by all those present.

## *Report of the Secretary*

Douglas L. Cannon

The membership of the Association, as enrolled April 1, 1938, is 1,531—an increase of forty-one in the number listed in my last annual report to you; and seventy-six more than on April 1, 1936. The total number of physicians in Alabama, according to the rolls of county medical societies and the records of my office, is 1,888—twenty-four per cent of whom reside in Jefferson County. In the period embraced by this report, seventy-seven physicians have been granted certificates of qualification to practice in the state; and forty-eight members and nonmembers have died. Accessions, therefore, outnumbered losses by twenty-eight.

Percentage of physicians identified with county medical societies is 84.4, as opposed to slightly more than 82 per cent on April 1, 1937, Negro practitioners numbering seventy-six having been deducted.

Distribution of the state's 1,888 doctors of medicine shows but little change over a year ago, there being now one physician to each 1,345 of the population. However, as set forth in my last report to you, the concentration is such in Jefferson County (one to 952) that the state-wide distribution, exclusive of Jefferson, is one physician to every 1,487 of the population; and this in contrast to twenty-five years ago when there were sufficient medical men to permit each 952 people to have a physician—the same distribution as now prevails in Jefferson County. According to Warbasse in his "The Doctor and the Public," the

national average is one to every 780 people. Thus the Alabama physician is serving nearly twice as many as his fellow practitioners throughout the United States.

A study of medical service, as expressed in terms of number of physicians in Alabama on March 1, 1938 and twenty-five years ago, reveals some interesting facts, summarized as follows:

1. There has been a net loss of 358 physicians since 1912, despite a half million increase in the state's population—according to the census figures of 1910 and 1930.

2. Fifty-eight of the state's sixty-seven counties have fewer physicians now than twenty-five years ago.

3. Only nine show an increase, and of the total increase of 143 involved in these nine, 104 were gained by Jefferson. Chambers shows an increase of one, Colbert one, Etowah nine, Lee three, Macon one, Mobile six, Montgomery twelve and Tuscaloosa five.

4. Ten counties have half or less than half the number of physicians they had in 1912. They are, with the number twenty-five years ago and on March 1, 1938: Autauga (12-6), Bibb (28-14), Bullock (22-9), Cherokee (16-7), Coosa (20-4), Dale (28-14), Greene (18-9), Lowndes (24-7), Washington (14-6) and Wilcox (37-14).

5. Twenty-eight counties have lost from 30 to 49 per cent of their physicians in the twenty-five year period; namely, Barbour (29-19), Choctaw (19-10), Clarke (30-16), Clay (20-11), Conecuh (21-9), Covington (30-20), Crenshaw (20-12), Cullman (31-20), DeKalb (30-20), Fayette (18-10), Franklin (26-17), Geneva (33-19), Hale (23-12), Jackson (29-17), Lamar (28-15), Lawrence (18-10), Limestone (25-16), Marengo (35-18), Monroe (32-16), Morgan (43-30), Perry (19-11), Pickens (27-16), Pike (33-22), Randolph (23-16), Shelby (27-17), Talladega (45-30), Tallapoosa (32-18) and Winston (15-10).

6. The twenty remaining have experienced a loss of physicians ranging from two to twenty-nine per cent, as follows: Baldwin (21-15), Blount (20-15), Butler (21-17), Calhoun (49-48), Chilton (20-19), Cleburne (10-7), Coffee (22-18), Dallas (46-42), Elmore (20-18), Escambia (23-22), Henry (15-12), Houston (39-38), Lauderdale (34-32), Madison (42-37), Marion (22-17), Marshall (28-24), Russell (15-13), St. Clair (19-15), Sumter (24-20) and Walker (48-37).

7. In the ten counties—Autauga, Bibb, Bullock, Cherokee, Coosa, Dale, Greene, Lowndes, Washington and Wilcox—the medical service of which, in terms of number of physicians, has been impaired 50 per cent or more, there are ninety doctors of medicine serving a population of 200,212 —of which 5,978 is urban, 194,234 rural; 92,767 white people and 107,445 Negroes. Sixteen of the ninety doctors have entered upon the practice of their profession within the last twenty years; seventeen have been practicing from 20 to 29 years; thirty-three from 30 to 39 years; seventeen from 40 to 49 years; and seven have been practicing for fifty years or more. Time forbids a similar analysis now of other county groupings.

From these facts, your Secretary would draw no conclusions, being of the belief the implications are perfectly clear.

The report of the Committee on Public Relations no doubt will relate that "the Board of Trustees of the American Medical Association recently adopted resolutions designed to assist and encourage state and county medical societies to collect information concerning medical needs and to formulate preferable procedures to supply these needs in accordance with established policies and local conditions. The information, to be collected on forms provided, is to enable county medical societies more easily and accurately to judge the completeness or insufficiency of the local services and facilities for the care of the indigent sick." Believing that in such a worth-while endeavor the Association and its several component societies should engage heartily, your Secretary recommends that the study receive the endorsement of the Association; and that, if necessary to assure its success, the State Health Officer be requested to make available certain members of his field staff to cooperate with the Committee on Public Relations in initiating the study.

It is customary and fitting to enter herein the names of those members of the Association who have died since the last annual meeting. They are: Life Counsellors W. F. Betts, T. J. Brothers, H. T. Heflin and W. S. McElrath; Active Counsellors G. A. Cryer and W. H. Greer; and Members I. C. Ballard, J. M. Barfield, B. R. Bradford, H. S. Bruce, R. M. Buchanan, H. M. Dismukes, D. G. Estes, J. H. Foster, J. A. Gilmore, G. M. Guthrie, E. W. Hart, R. B. Hays, W. P. Hughes, L. T. Hutto, E. S. Miller, W. B. Moorer, T. H. Patton, B. B. Pugh, W. E. Quin, C. Hilton Rice, J. R. Sherman, F. M. T. Tankersley, P. M. Thompson, C. V. Townsend, E. H. Tubb, J. R. Vann, D. W. Ward and I. D. Wood.

At the last meeting, eight members—C. T. Acker, Montevallo; J. O. Belue, Athens; E. T. Brown, Cleveland; C. A. Grote, Huntsville; C. W. C. Moore, Talladega; L. V. Stabler, Greenville; W. A. Stallworth, Frisco City, and C. K. Weil, Montgomery—were elected counsellors. All accepted the honor, have complied with the provisions of the Constitution governing counsellors-elect, and at the proper time should be added to the Roll of Active Counsellors. Vacancies in counsellorships that will present at this session will be announced, according to constitutional requirement, at the close of tomorrow morning's session. Let it be sufficient at this time for your Secretary to set forth the congressional districts now known to be concerned, and the reasons for the actual vacancies; that is, those resulting from causes other than expiration of term:

2nd District—One vacancy. R. A. Smith of Brewton is to be elevated to Life Counsellor.

3rd District—One vacancy. P. M. Lightfoot passes to the grade of Life Counsellor.

4th District—One vacancy because of the death of G. A. Cryer.

6th District—One vacancy for the reason that J. L. Shamblin is delinquent in attendance.

7th District—One vacancy. W. E. Howell is to be elevated to Life Counsellor.

8th District—Three vacancies. W. H. Greer is

deceased. E. V. Caldwell and A. A. Jackson pass to the grade of Life Counsellor.

9th District—One vacancy because of elevation of J. M. Mason to Life Counsellorship.

As will be related elsewhere in the proceedings of this session, the State Board of Censors on June 11, 1937 directed a letter to all county medical societies calling attention to their legal responsibilities, and asking that it be determined whether each possesses a suitable constitution to govern its actions and deliberations. As a corollary, your Secretary inquired as to existence of charters issued all societies in 1912. Replies were received from all counties—thirty being in the affirmative and thirty-seven in the negative. This being the situation it would seem that duplicate charters should be issued those societies that have misplaced the original. It is recommended, therefore, that the Association authorize the incoming President and the Secretary to issue the following charter to the medical societies of the counties of Autauga, Baldwin, Barbour, Bullock, Butler, Calhoun, Chambers, Choctaw, Clay, Coosa, Crenshaw, Cullman, Dale, Dallas, DeKalb, Elmore, Escambia, Etowah, Fayette, Franklin, Geneva, Houston, Lauderdale, Lawrence, Lee, Lowndes, Madison, Marengo, Marion, Marshall, Pike, Randolph, Russell, Shelby, St. Clair, Washington, and Wilcox.

CHARTER of THE MEDICAL SOCIETY
of

.....

(Originally chartered .....)

(Replacing charter of 1912, reported as lost, and authorized by the Association in annual session, Mobile, April 21, 1938)

Proof having been made to The Medical Association of the State of Alabama, a corporation chartered by said State, that the physicians of the County of ..... have organized by adopting a Constitution approved by this Association, thus placing themselves in position to cooperate with this Association in the achievement of the objects set forth in its Constitution, therefore,

Be it known, that, by virtue of the power conferred upon it by the General Assembly of the State, in an act approved on the 6th day of February 1893, this Association does hereby charter said body of organized physicians as a County Medical Society, and authorizes and empowers said Society to do and perform all acts in furtherance of the objects of its organization, as set forth in its Constitution and further authorizes and empowers said Society, through its proper and legal officials, to enforce the public health and quarantine laws of the State and the public health ordinances of this Association, in so far as they apply to the said county; and also to enforce in the said county and in all municipalities therein such public health ordinances as the respective authorities thereof may legally enact, provided that said Society shall not do or perform any act in violation of the Constitution or ordinances of this Association. The said Society is hereby declared to be in affiliation with this Association, and also in fellowship with other county societies in this State chartered by this Association.

Done in the City of ....., on the ..... day of ....., 19.....

In testimony whereof the signature of the President and that of the Secretary of The Medical Association of the State of Alabama, together with the seal of said Association, are hereunto affixed.

..... M. D. ..... M. D.
Secretary President

It is further recommended, in the event the charters can be framed without great cost, that the Secretary be authorized to provide frames at the expense of the Association; and that the charters be so furnished the societies concerned in order that they may be properly preserved.

Act 181, General and Local Acts, Extra Session, 1936-1937, page 210, the author of which was Representative R. L. Hill of Marion County, a counsellor in this Association, provides that, after the fiscal year which ended September 30, 1937, two-fifths of annual license paid by physicians in the several counties shall constitute a separate fund to be disbursed by the State Treasurer on the order of the Board of Censors of each county medical society. In keeping with this legislation, checks totalling $7,629.18 were mailed sixty-four Boards of Censors on March 7, 1938. Despite two letters on the subject from my office, the Boards of Censors of the medical societies of the counties of Marengo, Marshall and Tuscaloosa failed to file requested requisition for their part of the fund, and the money now lies unclaimed in the state treasury.

Credentials, duly executed by the President and Secretary, have been handed the Association's delegates to the American Medical Association, convening in San Francisco, June 13-17. The term of these representatives, Drs. J. N. Baker and A. A. Walker, was continued by President E. S. Sledge for a period of two years, expiring with the 1939 meeting of the national body.

President Sledge named also, to succeed themselves on the committees of the Association, J. G. Bedsole (Mental Hygiene), Hughes Kennedy, Jr. (Maternal and Infant Welfare), J. P. Chapman (Prevention of Cancer), Job Cater (Prevention of Blindness and Deafness), C. K. Weil (Postgraduate Study) and W. S. Rountree (Fractures and First Aid)—their terms being three years.

Committeemen whose terms expire with this meeting are: F. A. Kay (Mental Hygiene), A. E. Thomas (Maternal and Infant Welfare), K. F. Kesmodel (Prevention of Cancer), B. B. Warwick (Prevention of Blindness and Deafness), Cabot Lull (Postgraduate Study) and Marcus Skinner (Fractures and First Aid). It will be a prerogative of the next president to name their successors.

At the last meeting of the Association resolution introduced by Dr. Seale Harris, Sr., was adopted providing for the appointment of a committee of five to raise funds, select and have erected a suitable monument to Dr. J. Marion Sims. In keeping therewith President Sledge named Dr. J. R. Garber, Birmingham, Chairman; and Drs. J. D. Perdue, Mobile; T. B. Hubbard, Montgomery; Marcus Skinner, Selma; and H. M. Simpson, Florence, committeemen.

Officers to be chosen at this meeting are a president, a vice-president for the Northeastern Division, a treasurer, two censors for five years to succeed Drs. M. S. Davie and Fred Wilkerson, whose terms have expired, and fifteen counsellors.

## *Report of the Treasurer*

Jacob U. Ray

ASSOCIATION YEAR 1937-1938

GENERAL ACCOUNT

*Receipts*

| | |
|---|---|
| Balance, April 20, 1937 | $3,285.52 |
| Dues from counsellors (Exhibit A) | 990.00 |

| | | |
|---|---|---|
| Dues from societies (Exhibit B) | 4,002.00 | |
| Dues from delegates (Exhibit C) | 532.00 | |
| Miscellaneous receipts—Interest | 179.50 | |

*Disbursements*

| | |
|---|---|
| Badges | 34.21 |
| Committee expense | 53.15 |
| Dues refunded | 13.00 |
| Expense, division meetings | 269.36 |
| Expenses, miscellaneous: | |
| Annual meeting | 12.50 |
| Delegates, A. M. A. | 75.00 |
| Treasurer's bond | 25.00 |
| Jerome Cochran lecturer | 100.00 |
| Postage | |
| Printing: | |
| Constitution | 87.98 |
| Stationery | 101.72 |
| Transactions | 577.60 |
| Salary, Secretary | 600.00 |
| Treasurer | 300.00 |
| Savings account transfer | 2,500.00 |
| Subscriptions to Journal (members—counsellors) | 2,866.00 |
| | $8,989.02 $7,684.87 |
| Balance, April 19, 1938 | 1,304.15 |
| | $8,989.02 $8,989.02 |

*Exhibit A*

Counsellors and Counsellors-Elect Remitting Dues

Abernethy, F. L.
Acker, C. T.
Acker, P. J. M.
Alison, J. F.
Alison, S. B.
Anderson, T. J.
Appleton, T. H.
Ashcraft, V. L.
Beard, R. B.
Bedsole, J. G.
Belue, J. O.
Brown, E. T.
Brunson, E. T.
Burdeshaw, S. L.
Caldwell, E. V.
Cannon, D. L.
Carter, W. R.
Chenault, E. M.
Craddock, F. H.
Cryer, G. A.
Dabney, M. Y.
Dowling, J. D.
Eskew, M. H.
Garber, J. R.
Gilder, G. S.
Gragg, V. J.
Graham, G. S.
Granger, F. G.
Greer, W. H.
Gresham, W. A.
Grote, C. A.
Hagood, M. H.
Hatchett, W. C.
Hayes, C. P.
Hayes, J. P.
Hill, R. C.
Hill, R. L.
Hodges, Rayford
Hollis, J. S.
Howell, J. V.
Howell, W. E.
Hubbard, T. B.
Jackson, A. A.
James, N. G.
Jordan, S. E.
Leach, Sydney
Ledbetter, S. L., Jr.
Lester, B. S.
Lewis, W. A.
Lightfoot, P. M.
Long, Clarence
Lull, Cabot
Martin, J. A.
Mason, E. M.
Mason, J. M.
Mayer, K. A.
McAdory, E. D.
McCall, D. T.
Moore, C. W. C.
Moore, D. S.
Newman, S. H.
Noland, Lloyd
Nolen, J. A. M.
Oswalt, G. G.
Parker, L. D.
Perdue, J. D.
Price, A. B.
Ralls, A. W.
Redden, R. H.
Riser, W. H.
Rountree, W. S.
Rucker, E. W.
Salter, W. M.
Scarbrough, B. C.
Scott, W. F.
Searcy, H. B.
Shropshire, C. W.
Sledge, E. S.
Smith, G. R.
Smith, R. A.
Stabler, L. V.
Stallworth, W. A.
Tankersley, James
Taylor, W. R.
Thacker, V. J.
Thomas, E. M.
Tillman, J. S.
Waldrop, R. W.
Walker, A. A.
Walls, J. J.
Walsh, G. F.
Weil, C. K.
Weldon, J. M.
Welch, S. H.
White, A. L.
Wilkerson, F. W.
Williams, M. J.
Wood, W. D.
Wright, D. H.

*Exhibit B*

Society Dues Collected at 1937 Meeting

| | |
|---|---|
| Autauga | $ 12.00 |
| Baldwin | 21.00 |
| Barbour | 33.00 |
| Bibb | 30.00 |
| Blount | 36.00 |
| Bullock | 27.00 |
| Butler | 36.00 |
| Calhoun | 111.00 |
| Chambers | 39.00 |
| Cherokee | 6.00 |
| Chilton | 42.00 |
| Choctaw | 21.00 |
| Clarke | 21.00 |
| Clay | 21.00 |
| Cleburne | 9.00 |
| Coffee | 39.00 |
| Colbert | 48.00 |
| Conecuh | 21.00 |
| Coosa | 12.00 |
| Covington | 45.00 |
| Crenshaw | 24.00 |
| Cullman | 39.00 |
| Dale | 30.00 |
| Dallas | 96.00 |
| DeKalb | 36.00 |
| Elmore | 42.00 |
| Escambia | 51.00 |
| Etowah | 141.00 |
| Fayette | 18.00 |
| Franklin | 48.00 |
| Geneva | 36.00 |
| Greene | 15.00 |
| Hale | 21.00 |
| Henry | 33.00 |
| Houston | 75.00 |
| Jackson | 36.00 |
| Jefferson | 933.00 |
| Lamar | 39.00 |
| Lauderdale | 66.00 |
| Lawrence | 21.00 |
| Lee | 57.00 |
| Limestone | 33.00 |
| Lowndes | 12.00 |
| Macon | 24.00 |
| Madison | 84.00 |
| Marengo | 39.00 |
| Marion | 27.00 |

| | |
|---|---|
| Marshall | 42.00 |
| Mobile | 267.00 |
| Monroe | 36.00 |
| Montgomery | 231.00 |
| Morgan | 63.00 |
| Perry | 21.00 |
| Pickens | 33.00 |
| Pike | 51.00 |
| Randolph | 36.00 |
| Russell | 12.00 |
| Shelby | 42.00 |
| St. Clair | 33.00 |
| Sumter | 39.00 |
| Talladega | 75.00 |
| Tallapoosa | 42.00 |
| Tuscaloosa | 120.00 |
| Walker | 87.00 |
| Washington | 12.00 |
| Wilcox | 30.00 |
| Winston | 24.00 |

*Exhibit C*

Delegate Dues Collected at 1937 Meeting

| | |
|---|---|
| Autauga | $ 8.00 |
| Baldwin | 8.00 |
| Barbour | 8.00 |
| Bibb | 8.00 |
| Blount | 8.00 |
| Bullock | 8.00 |
| Butler | 8.00 |
| Calhoun | 8.00 |
| Chambers | 8.00 |
| Cherokee | 8.00 |
| Chilton | 8.00 |
| Choctaw | 8.00 |
| Clay | 8.00 |
| Coffee | 8.00 |
| Colbert | 8.00 |
| Conecuh | 8.00 |
| Coosa | 8.00 |
| Crenshaw | 8.00 |
| Cullman | 8.00 |
| Dale | 8.00 |
| Dallas | 12.00 |
| DeKalb | 8.00 |
| Elmore | 8.00 |
| Escambia | 8.00 |
| Etowah | 8.00 |
| Fayette | 8.00 |
| Franklin | 8.00 |
| Geneva | 8.00 |
| Hale | 8.00 |
| Henry | 8.00 |
| Houston | 8.00 |
| Jackson | 8.00 |
| Jefferson | 28.00 |
| Lamar | 8.00 |
| Lauderdale | 8.00 |
| Lawrence | 8.00 |
| Lee | 8.00 |
| Limestone | 8.00 |
| Lowndes | 8.00 |
| Macon | 8.00 |
| Madison | 8.00 |
| Marengo | 8.00 |
| Marion | 8.00 |
| Marshall | 8.00 |
| Mobile | 12.00 |
| Monroe | 8.00 |
| Montgomery | 16.00 |
| Morgan | 8.00 |
| Perry | 8.00 |
| Pickens | 8.00 |
| Pike | 8.00 |
| Randolph | 8.00 |
| Russell | 8.00 |
| Shelby | 8.00 |
| Sumter | 8.00 |
| Talladega | 8.00 |
| Tallapoosa | 8.00 |
| Tuscaloosa | 8.00 |
| Walker | 8.00 |
| Washington | 8.00 |
| Wilcox | 8.00 |
| Winston | 8.00 |

Clarke, Cleburne, Covington, Greene and St. Clair did not remit dues for delegates.

JOURNAL ACCOUNT

April 1, 1937-March 30, 1938

*Receipts*

| | | |
|---|---|---|
| Balance, March 30, 1937 | $1,793.25 | |
| Advertising | 3,122.44 | |
| Subscriptions—Association | 2,866.00 | |
| Nonmembers | 21.00 | |
| Sundry receipts | 6.25 | $7,808.94 |

*Disbursements*

| | | | |
|---|---|---|---|
| Printing | $4,626.17 | | |
| Reporter, annual meeting | 85.00 | | |
| Salaries—Cannon | 300.00 | | |
| Ohme | 420.00 | | |
| Ray | 100.00 | | |
| Wilkerson | 300.00 | | |
| Sundry expenses | 30.95 | 5,862.72 | |
| Balance, March 30, 1938 | | 1,946.22 | |
| | | $7,808.94 | $7,808.94 |

## *Committee of Publication*

Fred W. Wilkerson, Chairman

In the calendar year 1937, fifty-three scientific articles and thirty-three editorials were published in the columns of The Journal. Sixteen hundred seventy-five copies are being run monthly, the distribution to members, exchanges, etc., being 1650.

Receipts from advertising during the same period amounted to $3,088.75—a substantial increase over the preceding twelve months. This, with portion of dues representing subscriptions, financed The Journal adequately.

The second publication of the Association, namely, the proceedings of the annual session, including the roster of physicians, and issued under the title of Transactions, was furnished all members.

The financial aspects of these items have been dealt with in detail in the Treasurer's report.

## *Committee on Public Relations*

John A. Martin, Chairman

In the past few years the term "public welfare" has been forced to the forefront in the consciousness of the American people. During disasters and national emergencies in times gone by we thought of public welfare in terms of food, shelter and clothing for people in distress. In the era of depressions and recessions, when government has directly assumed control of people in distress, public welfare not only embodies food, shelter and clothing but also supervision of work, living, play and medical care. In the rapidly changing pictures of social, economic, political and religious life in our country, we as a profession, which is so essential to the welfare of our people, must study the position we occupy in our scheme of national life, not only from the standpoint of preserving our profession but directing its activities in a way which will bring most benefit to all our people in the same efficient manner which has made the American system of practice so distinctive. Your Committee on Public Relations has made an honest attempt during the past year to keep up with all national, state and local activities which might affect directly or indirectly the medical profession. We have found it very difficult to understand or suggest means of handling certain of our problems.

Along this line we wish to call the Association's attention to the increased amount of work falling upon those who are delegated to do the work of this organization. With the large increase in the number of social agencies, local, county, state and federal, as well as various other agencies interested in the care of the sick, it becomes more important each day that all the elected and delegated officers of the Association familiarize themselves with the responsibilities of this Association and assist in every way to carry on the business of this body. Our committees are noticeably more active now than ever before; our vice-presidents have been very active; the State Health Officer and other officers are giving fully of their time, but with the multifold agencies and organizations seeking medical aid and advice, our officers and members must be more alert to their responsibilities. It must be remembered that our efforts must be united and concerted. Now is the time for all good men to serve their professional organization.

Changing social systems frequently become so rapid and radical that private lives as well as private and professional individualism are jeopardized in schemes aiming toward Utopia. The dangers of the situation confronting us are admirably summarized by that able economic commentator, David Lawrence of Washington, D. C., in a syndicated news letter in the New York Sun, August 26, 1937, under the title, "New Deal Passes from Law and Economics to Tamper with the Nation's Health." In this letter Mr. Lawrence briefly summarizes the results of socialized medicine in other countries of the world with the superiority of the American system as a preface to the exposure of "The Group Health Association" organized by employees of the Home Loan Corporation and financed by taxpayers' money. This seems to be the government's experiment with health plans and is probably the entering wedge of the program of socialization of medicine. It might be timely to warn members of this Association against signing any document until thoroughly familiar with the underlying purport of it. Many doctors in other states have been embarrassed by signing seemingly innocent documents for so-called social improvement affairs.

We wish to call your attention to The American Foundation Studies in Government Surveying the Cost of Medical Care. This study was made by a dozen American citizens of prestige, headed by Charles Bok as chairman. The report is voluminous and has been discussed through editorials in the Journal of the American Medical Association. Many pertinent facts and comments are given. Like other doctors we are led to inquire, "Why medicine more than any other human need?" There are more hungry men walking the streets than there are sick men. Why should medical men be forced to give their services under government supervision when the men who rent insanitary tenements and the men who supply food and clothing are not put under similar control?

Physicians more than any other group know the vagaries of the human will. The lack of universally adequate medical care results more from indifference on the part of the people than from economic or other reasons. The Metropolitan Life Insurance Company found in a house-to-house canvass of several thousand families that the majority of parents who had failed to have their children inoculated against diphtheria knew about the possible benefits, believed in preventive medicine, but had simply neglected the matter. Those of us who practice in this state know how real the above situation is.

After listening to the radio through one entire day, one would wonder why it is necessary to have doctors and where they get their patients. There are pills to give you that "justright feeling," tablets to put you on the alkaline side, tums for indigestion, that cleanser for the hangover, the instant headache relief, the cure of inorganic pains, and above all the only savior of mankind now on earth, the one and only who can lay on hands and drive all disease from the body and protect you from all evil spirits. No longer do we find castor oil, turpentine, camphor and quinine in the medicine cabinet, for in their stead we have Carter's Liver Pills, Alka-Seltzer, Pepsodent Antiseptic, etc. Physicians for years have been using ether waves to alleviate the suffering of mankind. It seems high time that we should use more commercial ether waves to protect mankind from other evils of misinformation and half-truths. Radio is an easy way to reach people with information that is vital to their good health. We urge medical societies to avail themselves of this opportunity at all times. For the Committee on Postgraduate Study we recommend this method for the rapid advance of its program. We wish to commend our State Health Officer for the splendid work he is doing over the radio.

We would call your attention to the serious situation which confronted doctors during the recent months in the State of Colorado where a proposed amendment to the Colorado Constitution would automatically cancel all medical, dental, and nursing laws, and every other professional license in the state. This attempt to initiate the amendment was done by the circulation of petitions throughout the state. Reaction asserts itself in peculiar ways and in many places.

The medical profession, along with other organizations, is stimulating interest in good health, periodic health examinations, prevention of cancer and tuberculosis. It is well and good that this information be broadcast, but, in considering these objectives, ways and means must be considered for the response to these appeals. This is particularly true in the cases of cancer and tuberculosis. If all who listened rushed in at once, doctors would be swamped with work. The most severe conditions are usually in poor people. A way and means of treatment are often more important than a diagnosis, especially in cancer and tuberculosis. Very soon treatment will be advocated by lay organizations in diseases of the latter type. Doctors must anticipate this demand and plan remedial measures now. County medical societies through their designated committees should assist in all propaganda distribution and attempt to work out ways of handling the cases that respond to such education.

During the past eight months a matter which involved the professional and economic welfare of a large number of the members of this state organization and a certain percentage of the lay people of our state has occupied much of the study of this Committee. This problem involved supplying medical service through the organized county society to groups who are receiving aid from some governmental agency. The distribution of this problem is so widespread that more than purely professional and economic angles must be considered. We have tried to study the problem from the viewpoint of all the people and agencies which are to participate in it. We have also studied two experimental attempts now in operation to solve this problem. After all our studies, we are not able at the present to submit any solution. We are studying the situation from a statewide viewpoint with the idea in mind of suggesting a solution which will be uniform and meet the requirements of our State and American Medical Associations. We are collecting material which may make it possible to submit a plan very soon.

We believe the personnel of this Committee will have to respond to requests to visit many counties in the state and assist in the solution of some of their problems. This is especially true where experimental projects are to be studied. The Association should recognize the necessity of expense in work of this kind and make allowances for this and other committees to do work of this sort.

We urge county secretaries to direct more communications to officers, committees and members of this Association through our Journal.

The American Medical Association is now making a most comprehensive study of need and supply of medical care throughout the U. S. This is the first and most complete attempt to answer this question. The answer must come through the cooperation of all individuals, agencies and institutions which have either supply or need of medical care. The physician must not only furnish his own personal information but insist that all agencies, individuals or institutions in his county complete their questionnaires. This is the only way to get direct and complete information on the problems which affect our professional, economic and social welfare. The American Medical Association has been called on to present facts. As a part of that organization, let's give it our cooperation.

## *Committee on Mental Hygiene*

Frank A. Kay, Chairman

In reporting for the year's work just ending we find it difficult to express in concrete details the results of our efforts. There is much that we have done that has come to naught. Many conferences were attended by members of this Committee, meeting with other citizens and workers, interested in establishing a mental hygiene clinic in Birmingham. For a while the project seemed almost assured with certain of the necessary maintenance cost having been guaranteed. But this April finds the project doomed for the present. We recount this failure only to record our interest and participation in this much needed agency.

The past year has revealed a greater interest in mental hygiene than we have observed in a number of years. The visit of Mr. Clifford Beers and Dr. Clarence Hincks to this state and their participation in the annual meeting of the State Society for Mental Hygiene has given this Society a new impetus, and we have given active support in this direction.

The release of certain funds for the buildings at the State Hospitals for Mental Disease, though these funds be inadequate, is gratifying and will help to ease a certain tension there.

Your State Hospital, though handicapped in many respects, continues to try to do a certain missionary work through clinical demonstrations for the students of the schools of higher learning.

Two requests for talks on mental hygiene referred to this Committee have had a ready response.

We hear reports of the establishment of a four-year medical school and a psychiatric center in Alabama. Whether these materialize or not does not affect the fact that, more and more, citizens, both lay and professional, are looking toward fulfilling this great need.

Again we repeat that while we need the help of all groups, we feel that leadership in mental hygiene should come from the medical profession, and we solicit the help of all physicians in all fields of practice in supplying this leadership.

More and more the feeling and knowledge grows that mental hygiene can supply a definite practical aid to children and adults in meeting their problems of living, growing and adjusting,

and we as physicians must inform ourselves and be able to supply this information to others if we are to retain the respect that the world has always held for us.

## *Committee on Maternal and Infant Welfare*

A. E. Thomas, Chairman

The objectives of the Committee on Maternal and Infant Welfare have been outlined at previous meetings.

The chief endeavors during the past few years have been to create interest of the medical profession toward solving the problem associated with maternal care. Maternal care must be carried out intelligently, completely and constantly for every prospective mother, no matter what her social or economic status may be. Your Committee believes that proper nursing and medical care in the home, the outpatient clinic, the doctor's office and the hospital are the most vital parts of maternal care.

Your Committee is cooperating with Dr. Eva Dodge, associate in charge of the State Department of Health's Division of Maternal Hygiene in consultative, clinical supervision and organization work. We feel that sympathetic cooperation will aid in eliminating ignorance, indifference and superstition. Too frequently there is a lack of appreciation of modern obstetric thought and a lack of cooperation with the many forces promoting progress in obstetrics. There should be undivided cooperation between governmental and professional groups so that the best results may be obtained with the least friction and the minimum of antagonism.

The problem of maternal mortality is not confined to rural localities. Haste in any clinical procedure that encourages radical treatment also increases our mortality. For example, the hospitals that are not approved by the American College of Surgeons have two per cent more cesarean sections than the approved hospitals.

Sepsis continues to be the greatest single cause of death in child-bearing women, outnumbering all other causes and accounting in its own right for over one-third of all the obstetric fatalities in Alabama. Do you know that the year 1930 shows that there were 164 deaths due to sepsis and the year 1936 recorded 165 deaths? While there has been a reduction in all other causes, infection actually shows an increase and holds on tenaciously. If we could only fan the flame of indignation to white heat!

Sepsis develops as a result of the introduction of pyogenic bacteria into the birth canal before, during or after labor, usually by the attendant. The tendency toward infection is enhanced by exhaustion, long labors, traumatism and blood loss. Obviously, the most important aspect of the treatment is prevention.

The death rate from toxemia remains far too high, though considerable reduction has been brought about by an increasing prenatal influence and a gradual abandonment of the more radical methods of treatment and their substitution for some form of conservative treatment.

The abortion problem remains unchanged. Each year in the United States more than eight thousand women die from the effects of illegal abortion. Every time the clock strikes the hour some unfortunate potential mother dies. Every time it ticks the minute some one takes that chance by consulting an abortionist. Were a dozen babies born to your friends and acquaintances last year, then among those same friends four abortions were performed. Abortionists ply their trade in utmost secrecy.

The class of would-not-be mothers is, I believe, numerically on the increase and this is not due to illegitimacy. Is there an answer to this problem? Perhaps not, but there is a cure for burdensome prolificacy which breeds abortions among the poor. The intelligent, voluntary spacing of pregnancies may be desirable for the health and the general well being of the mothers and children.

The stillbirth rate shows a slight decline. However, we know beyond question that adequate prenatal treatment instituted in time will prevent syphilis in the newborn and reduce the stillbirth rate also. In view of the fact that many of these deaths can be prevented and many of these children can be prevented from going through life with the stigma of syphilis, your Committee suggests that we institute the same program that has been instituted in New York; that is, that every doctor be required to certify on the birth certificate as to the period of gestation, that the blood Wassermann was taken, and if not, why? This will help to blot out syphilis and the stillbirths.

Your State Department of Health is doing a splendid work in the organization of prenatal clinics. It has on its staff an all time obstetrician and pediatrician for consultation and clinical supervision. The Health Department is conducting an experimental home delivery service in Cullman County which consists of two obstetric nurses for home delivery services. These nurses are available for the general practitioner. We hope this will extend to other counties.

Your Committee is presenting at this meeting a feature movie, "The Birth of a Baby," for your approval. We believe it marks a definite innovation and real progress in lay education regarding some of the fundamentals of life and will be released under certain conditions for lay education in counties where the officials of the societies approve of its presentation.

In 1937 there were 366 maternal deaths which was seventy less than the figure of the preceding year and decidedly the lowest on record. In general there has been a steady decline since 1929 and if the present rate of decline were to continue there would be no maternal problem in Alabama by 1945.

The Committee wishes to take this opportunity to thank each of you for your cooperation and we ask for further cooperation with the following suggestions and recommendations:

1. Infection—Reasonable obstetric conservatism and constant surgical cleanliness in handling parturient women will effectively prevent all but a minimum amount of puerperal infection in hospital or home practice.

2. Toxemia—Adequate prenatal care judiciously carried out will continue materially to lower

still further the maternal and fetal mortality from this menacing source. We ask the sympathetic cooperation of all state agencies seeking improved services for maternity care.

3. Abortion—Preconceptional and premarital care will help to safeguard mothers from possible later disaster.

4. Stillbirths—Stillbirths may be further reduced by careful and accurate reporting of the causes of death. Amend the birth certificate so as to include a query regarding the Wassermann test. Every mother with a history of syphilis should receive adequate antiluetic treatment regardless of the serologic findings.

5. Development of postgraduate instruction for nurses and doctors.

6. Enlarge the maternal committee so as to have each district represented.

7. Approve the presentation of the motion picture sound film, "The Birth of a Baby," to lay audiences.

## *Committee on Prevention of Cancer*

J. P. Chapman, Chairman

Your Committee on Presention of Cancer expects to achieve greater results during the coming year, than is apparent from its efforts during 1937.

1. Believing its most effective work can be accomplished through the application of the slogan, "Fight Cancer With Knowledge," we have endeavored to organize in each county medical society a local committee on cancer control, which will be more closely affiliated with this Committee. Each local medical society is urged to arrange in its yearly program a place for one or more discussions of some phases of cancer. Visiting speakers, motion films, exhibits, etc., may be available for these special meetings by arrangement with the State Committee.

2. It will be necessary to designate various hospitals or clinics, as cancer centers, where adequate diagnostic and therapeutic facilities may be available. Ultimately Cancer Clinics will be needed for taking care of indigent cases.

3. The Committee's activities have been greatly increased through the generosity of the State Department of Health in permitting Dr. Eva Dodge, of its Division of Maternal Hygiene, to serve as our secretary. In her statewide contact, with medical profession and various women's organizations, Dr. Dodge will be of incalculable value to this Committee in its cancer control efforts.

4. The Committee is also indebted to Dr. J. N. Baker for his frequent press discussions and numerous radio talks on cancer, in its various phases. This effectively enlightens the public and arouses their interest in the early recognition of cases, giving directions as to the control of cancer.

5. The Committee desires to express publicly its deep appreciation of the splendid work being done by the American Society for the Control of Cancer, in its direction of the organization in our state of a Division of the Women's Field Army, whereby widespread interest may be aroused in saving men and women from untimely cancer deaths. This work is under the supervision of this Committee.

## *Committee on Postgraduate Study*

Ralph McBurney, Chairman

The program on syphilis control started in 1936 was continued. Through the cooperation of the State Department of Health and the membership of the Association with the Committee definite progress was made.

Programs on syphilis were held in 29 counties. In eight of these, two separate programs were given. The number of counties having a program on syphilis by members was seven. The number having a program on syphilis presented by representatives of the State Department of Health was 29. Members presenting papers and their subjects were as follows: Dr. Clarence Weil, "Syphilis in Private Practice"; Dr. Robert Parker, "Prenatal and Congenital Syphilis"; Dr. D. B. Snelling, "Cardiovascular Syphilis"; Dr. F. W. Riggs, "Syphilis of the Skin"; and Dr. Seale Harris, Jr., "Treatment of Late Syphilis."

An institute on syphilis for Negro physicians was held in Birmingham on March 16th, with the following physicians participating: J. D. Dowling, E. F. Dodge, J. P. Robertson, Seale Harris, Jr., Clifford Lamar, C. W. Shropshire, W. S. Littlejohn, J. M. Townsend, G. A. Denison, D. G. Gill and W. H. Y. Smith.

An institute on syphilis for Negro nurses was held in Tuskegee on April 2 and 3, 1938.

In addition to syphilis control, the committee acting jointly with the aforementioned agencies has added the study of pneumonia and its control as an additional objective.

Sixteen meetings on pneumonia control under the Committee's sponsorship were presented during the year—one before the Jefferson County Medical Society by Dr. George Denison of the Jefferson County Board of Health; and fifteen delivered by Dr. J. J. Repa and Mr. Cooper Brougher of the State Department of Health in strategic cities of the state which were selected to best meet the convenience of the medical profession from a geographic standpoint.

The program consisted of the showing of a motion picture film on pneumonia, the demonstration of the Neufeld method of typing the pneumococcus and the presentation of a talk on the "Diagnosis and Serum Treatment of Lobar Pneumonia."

Invitations to attend these meetings were sent out to all physicians whose names appear on the roster of the State Medical Association and, in addition, each host county medical society was requested to invite the physicians in neighboring counties, thereby availing each more than one opportunity of attending the program. A total of 583 physicians attended these meetings.

Through the efforts of the Committee on Postgraduate Study and the State Department of Health the following features of the program are now in effect:

1. Typing of sputum is available free of charge in all laboratories run by the State Department of Health.

2. Free training is available to all laboratory technicians in the technic of pneumococcus typing, by the State Department of Health.

Unfortunately, due to the lack of funds, free serum is not available for indigent patients at the present time and there has been no indication that such arrangements are forthcoming in the immediate future.

The Committee is cognizant of the existing obstacles impeding the progress of a satisfactory program against lobar pneumonia, the most important of which are enumerated as follows:

1. High cost of antipneumococcic serum.
2. Frequent inability on the part of the attending physician to have the sputum of patient typed within 72 hours after onset of the pneumonia, the period within which serum is recommended.

However, it is felt that the practice of every physician is made up, in part, by patients whose families can afford fifty to one hundred dollars for the cost of serum or can procure the money in the same manner that they do for an emergency operation. These patients, as few as they might be, are entitled to the life-saving virtues of antipneumococcic serum and their physician should be equipped to administer serum when the opportunity presents itself.

In 1937, reports from Massachusetts and New York indicated that types one and two pneumococcic caused approximately 60% of all cases of lobar pneumonia but later reports from these and other states, including Alabama, place these figures much lower—at approximately 33%. It is quite possible that different types of pneumococci are more prevalent in different sections of the country, and thus vary as a causative factor in the mortality rates from pneumonia. It behooves us to first learn these facts concerning the prevalence of the 32 types of pneumococci in our state so that we may be better able to evaluate them and have an ample supply of serum available for ready use.

Also, with more concrete evidence concerning the prevalence of pneumonia in the state, and with definite knowledge concerning the tremendous need for free distribution of serum in the indigent group forcibly impressed upon the minds of the people, free serum will be provided in Alabama as it is in other states.

Looking toward the future, the Committee is unanimously of the opinion that a more extensive program of postgraduate study dealing with subjects of medical interest to the general practitioner is needed. The Committee advocates a departure from the adoption of a yearly subject as its objective, favoring a program of extension teaching wherein a regular schedule of such teaching, by representative specialists, could be effected in order that postgraduate instruction might be available to physicians of the state at points easily accessible to all. Organized postgraduate teaching is already in effect in a number of states and its worth is well recognized.

Opportunity for a permanent program of this nature presents itself to the Association through the joint activities of the Committee on Postgraduate Study, the State Department of Health, and Dr. Maxwell E. Lapham, Director, Division of Medical Extension, Tulane University of Louisiana.

A proposed program of organization and study to be worked out in detail is to be presented to the Association by Dr. Lapham. Tentative plans for financing a complete program of this nature are under consideration and advisement of the State Health Officer. The Committee hopes that the Association may see fit to endorse such movement towards a more extensive program, and that, insofar as funds may be available, will recommend the expenditure of a reasonable and substantial amount which, in part, will make a more extensive and permanent program of postgraduate instruction possible.

The Committee wishes to thank the State Health Officer and his staff and members of the Association for their interest and complete cooperation in the program of the past year.

Following the presentation of the Report of the Committee on Postgraduate Study, Dr. Maxwell E. Lapham, Director, Division of Medical Extension, Tulane University of Louisiana, discussed as follows medical extension teaching:

*Dr. Lapham:* For the past several years many state medical associations have been interested in sponsoring extension courses for their members. It has been one of the definite advances in postgraduate medical education because it has probably reached more physicians in states where it has been tried than any other method of continued education. There are relatively few physicians who feel they can afford to leave their practices for any length of time to take postgraduate work, and extension courses, brought to the physician in his vicinity in the form of review or refresher courses, help to take the place of more formal postgraduate courses in medical centers. They give those physicians an opportunity to attend medical courses of which they would otherwise not avail themselves.

There are numbers of states where intensive extension courses have been given over a period of years with continued success measured by the physicians' interest and desire for other courses. Virginia, Tennessee, Mississippi, Oklahoma, North Carolina, Kansas and Iowa are particularly outstanding in advancing this type of postgraduate work.

In most states, medical extension teaching has been administered by a committee composed of representatives from the State Medical Association and State Board of Health, and, in states where there are medical schools, representatives from these schools have also been members of this committee on postgraduate medical education. The committee, through a field organizer, has arranged classes of physicians in logical geographic centers in the state. It has also obtained the services of instructors to do the teaching. This plan has worked well in most instances, and the instruction has been well received and appreciated by the physicians.

These courses have been financed by appropriations from state medical associations, state boards of health, by small fees charged each attendant, and in several instances by grants from philanthropic foundations. The courses have not, therefore, been entirely self-supporting and have given the impression of being only temporary.

About year and a half ago, a plan was conceived to make a medical school assume the responsibility for continued medical education over the geographical territory in which its influence might logically be expected. It was the idea that if extension medical education were to be a permanent method of postgraduate medical education, then recognized medical schools should assume responsibility for this work in areas where their influence might be felt. It was also the idea that these medical schools should establish a permanent policy of giving this form of postgraduate work at least by partially subsidizing the extension work for which it had made itself responsible.

This is exemplified at Tulane University School of Medicine through whose Division of Medical Extension courses are offered to physicians in the states immediately surrounding it. Instead of having the various state medical associations take on this work alone, this medical school will assume the responsibility for the organization and administration of such courses, using its field organizer to arrange the classes and employ members of its faculty to do the teaching in the field. If instructors for extension teaching are not available in that medical school, then men will be obtained from other centers of good standing and reputation.

Having had some experience in extension teaching over a period of several years, I know that in order to give the best instruction one must be in contact with active clinical work and teaching. The man who does such work for a very long time "goes stale" and loses prestige unless he maintains contact with actual medical practice and teaching. It, therefore, seems logical that men who are constantly teaching and seeing large groups of patients in medical centers would be the best available persons for giving extension courses.

There has always been a tendency on the part of medical schools to cease having interest in its graduates as soon as they leave school and this kind of work seems to me to be a definite step forward on the part of medical schools to maintain some contact with their men after they have graduated. The medical school is rather seeking the graduate to help him, if you will, rather than leaving this matter entirely in the hands of the physician to seek out a medical school for the purpose of taking some postgraduate work. There is, furthermore, a tendency on the part of many a physician to delay taking postgraduate work simply because he is too busy, or does not think he needs it, or thinks he cannot afford to leave his practice.

Even though this type of postgraduate work is not as complete as a course in a medical center might be, still it offers a means of refreshing oneself in certain medical subjects and possibly stimulates some men to think more seriously of taking formal postgraduate study.

Generally speaking, the courses which have heretofore been given in many states have been arranged so that no doctor would have to travel more than 15 to 25 miles to attend the courses, thereby the physician lost very little time from his practice.

The course is planned to give practical lectures in certain branches of medicine, lasting about 1½ hours. The lecture is followed by clinical demonstration of patients who have been obtained by the local physicians, after which an informal round table discussion continues for as long as anyone is interested in asking questions. The remainder of the instructor's time is at the disposal of the physicians attending the course, if they desire to have him see patients with them or to discuss medical problems which they may have.

The course usually lasts for one or two weeks. Probably the best system is to have classes organized on the circuit system so that the instructor meets one of five groups one day a week for ten weeks. This takes the physician away from his practice only one day of the week during the time the course is conducted.

In order to organize and conduct such courses successfully, it requires some thought in procuring an organizer who can arrange classes and explain the work to the physicians, and also in obtaining reputable instructors who can give courses of practical value to the classes. It is the feeling of people who are interested in this kind of work that the services of the best available instructors should be procured.

It has been the consensus of opinion of the authorities at Tulane Medical School that the cost of administration and part of the organization of such courses should be assumed by the school if this plan of education is to be permanent. Then only the expense of the salary and travel of instructors should be made up in large part by modest fees charged, combined with commitments from the interested medical organizations within any state where such a program is to be conducted. Necessarily, some budget has to be compiled, and in other states, where similar programs have been given, the aforementioned means of raising a budget have been successfully used.

As a matter of fact, it is necessary for the Division of Medical Extension to subsidize a part of the expense of instruction in another state where a program is running so that the funds raised by the state medical organizations and by fees pay for about half of the cost of such a program. This, however, can only be done only so long as there is an available grant from a philanthropic organization.

An attempt has been made to outline briefly the progress made in medical education by way of extension courses; also the way such courses are organized and administered and methods by which extension courses can easily be financed.

This program has been presented to you for your careful consideration, hoping that some interest may be aroused locally in such a program, for it seems to be a valuable means of im-

proving the practice of medicine in a general way with the minimum amount of expenditure and effort on the part of those who might be interested in taking some postgraduate work in medicine.

### *Committee on First Aid and Fractures*

H. Earle Conwell, Chairman

We have continued to carry out the same routine as last year, making contacts with as many county societies as possible and talking first aid in fractures, also stimulating each county society to make contact with its local community, especially ambulance drivers, firemen and policemen.

The Committee feels that by such contacts being persistently carried out, which is the Committee's hope, that improvement in first aid and the treatment of fractures will eventually be accomplished.

### *J. Marion Sims Memorial Committee*

James R. Garber, Chairman

The Committee appointed by the President to raise funds and erect a memorial to the memory of James Marion Sims reports that only a preliminary discussion of the matter has taken place. So far, the Committee has not developed a definite plan of procedure and, until this action can be attained, a report to the Association would be of little importance or value. However, the Committee will pursue its duties aggressively and hopes that at the annual convention to be held in Montgomery in 1939, the memorial to Dr. Sims will be ready for presentation. This opportunity is taken to appeal to the doctors of Alabama to lend their generous and hearty support and cooperation in the work of the Committee.

### *Miscellaneous Business*

Resolutions introduced by the Coffee and Wilcox County Medical Societies; and by Drs. A. C. Jackson, C. B. Jackson and Lee F. Turlington were presented to the Association and referred without discussion to the Board of Censors.

The Association recessed for a buffet luncheon at the Battle House.

#### Afternoon Session, Tuesday, April 19

#### 2:00 P. M.

Dr. A. Graeme Mitchell of Cincinnati presented a paper on "Practical Application of Studies on Gastro-Enteritis."

Dr. J. Otis Lisenby, Atmore, continued with "The Diagnosis and Treatment of Tumors of the Breast." The paper was discussed by Drs. M. Y. Dabney and Gilbert Douglas of Birmingham and Dr. W. W. Harper of Selma.

"Metrazol Treatment of Psychoses" was the subject dealt with by Dr. F. A. Kay of Tuscaloosa; and his paper was discussed by Drs. W. D. Partlow, Tuscaloosa, and R. E. Shaw of Whatley.

Dr. Chalmers H. Moore presented a paper on "Head Injuries" which was discussed by Dr. Lloyd Noland of Fairfield.

The last paper of the afternoon was given by Dr. Henry F. Helmholz of Rochester, Minn., on "Abdominal Tumors in Childhood."

#### Evening Session, Tuesday, April 19

#### 8:00 P. M.

A symposium on obstetrics occupied the evening program contributed to by Dr. H. B. Dowling, Mobile, "Chorio-Epithelioma"; and Dr. J. R. Garber, Birmingham, "Fallacies in the Conduct of Labor." The papers were discussed by Dr. J. M. Weldon of Mobile.

"The Birth of a Baby: A Sound Motion Picture" was presented under the sponsorship of the Association's Committee on Maternal and Infant Welfare to conclude the evening's program.

#### Second Day, Wednesday, April 20

#### 9:00 A. M.

Dr. B. F. Byrd of Nashville read a paper on "The Insurance Triangle: Applicant, Examiner, Company."

"Medicine as a Profession" was the subject of an address by Dr. R. S. Hill of Montgomery.

Dr. J. H. Musser of New Orleans discussed the "Treatment of Organic and Inorganic Diseases of the Stomach."

"Surgery of the Biliary Passages with Special Reference to the Hazards and their Management" was a joint contribution of Drs. J. W. Means and C. J. Delor of Columbus, Ohio.

The Jerome Cochran Lecture, "An Optimistic View of Some of the Problems of Heart Disease," was delivered by Dr. T. M. McMillan of Philadelphia.

### *Miscellaneous Business*

Vacancies in the College of Counsellors were announced by the Secretary.

Recess was declared until 2:00 P. M.

**Afternoon Session, Wednesday, April 20**

**2:00 P. M.**

Dr. C. N. Leach, Montgomery, presented a paper on "Rabies."

Dr. L. H. Hinton of Mobile continued with a "Review of Some External Eye Diseases," discussed by Dr. J. C. O'Gwynn, Jr., of Mobile.

Dr. J. H. Little of Mobile read a paper entitled "Progress in the Treatment of Diabetes," which was discussed by Dr. E. G. Givhan, Jr., of Birmingham.

Dr. Oscar W. Bethea, New Orleans, presented a paper on "The Pneumonias."

After adjournment the Mobile County Medical Society entertained the Association at a barbecue on Dog River.

**Evening Session, Wednesday, April 20**

**8:00 P. M.**

The Association's Public Meeting, held in the ballroom of the Battle House with Dr. Charles A. Mohr presiding, was addressed by Drs. Alice C. Evans of the U. S. P. H. S. and J. N. Baker, State Health Officer. Dr. Evans' subject was "Undulant Fever as a Public Health Problem"; and Dr. Baker's, "What Significance Has Alabama's Declining Medical Population?"

The Association adjourned for a reception and dance at the Country Club; and to reassemble at 9:30 A. M. on Thursday, April 21, for its final session.

(To Be Concluded)

# DEPARTMENT OF PUBLIC HEALTH

## BUREAU OF LABORATORIES

Samuel R. Damon, Ph. D., Director

### SPECIMENS EXAMINED

APRIL 1938

| | |
|---|---|
| Examinations for diphtheria bacilli | 709 |
| Agglutination tests (typhoid, Brill's, undulant fever, etc.) | 591 |
| Typhoid cultures (blood, feces, urine) | 904 |
| Examinations for malaria | 1,317 |
| Examinations for intestinal parasites | 2,148 |
| Serologic tests for syphilis (blood and spinal fluid) | 17,738 |
| Darkfield examinations | 18 |
| Examinations for gonococci | 1,366 |
| Examinations for tubercle bacilli | 1,171 |
| Examinations for Negri bodies (microscopic) | 173 |
| Water analysis (bacteriologic) | 765 |
| Milk examinations | 2,032 |
| Pneumococcus typing | 33 |
| Miscellaneous | 1,130 |
| Total specimens | 30,641 |

### BLOOD CULTURES FOR BRUCELLA

Various workers have found that Brucella can often be cultured from the blood of patients suffering from undulant fever. The technique for such culturing has been, of necessity, rather elaborate and little suited to routine practice, in that a special medium and prolonged incubation under partial $CO_2$ tension is employed. Results are often much delayed and when negative are of little value. Positive blood cultures, on the other hand, are of diagnostic significance.

The Central Laboratory in Montgomery is planning to make an evaluation study of blood cultures in Brucellosis. This study will have to be rather limited in scope, but when completed should be of considerable interest. To keep the study within its very limited bounds it is requested that physicians submit only specimens of blood for culturing on which agglutination titers of 1:80 or higher have been obtained. Since more consistent results are obtained when cultures are made on blood taken during fever, it will be of advantage to await a febrile period before taking a specimen for culture. Cooperation in this study by all physicians of the state will be appreciated.

## BUREAU OF HYGIENE AND NURSING

B. F. Austin, M. D., Director

### NUTRITION AND PELLAGRA

It is definitely established that pellagra is caused by dietary deficiency. The specific vitamin or vitamins that are responsible for this disease have not been absolutely determined. Authorities are agreed that the deficiency is in the vitamin B complex. It is certain that the disease can be prevented by maintaining a proper diet. The food selection of persons residing in pellagra endemic areas must be guided by scientific knowledge, and, if lasting results are to be obtained, the every-day diet of

these people must be changed or modified so as to include sufficient quantities of the pellagra-preventive factor. According to Sebrell,[1] the foods most valuable for prevention of pellagra are large quantities of milk, liver, lean meats, peanut meal, canned collards, kale, turnip greens, green peas and tomato juice. These foods have been tested and proven to be good sources of the pellagra-preventive factor. With a variety of these foods it is evident that there can be a wide range of food selection and yet a good anti-pellagra diet. A normal everyday diet with special attention to the pellagra preventive foods is probably the most practical means of prevention.

Recent work on the use of nicotinic acid as a therapeutic agent in the treatment of human pellagra has stimulated a hopeful outlook for the treatment of the disease. Since pellagra presents itself as a major health problem in Alabama it seems very timely to discuss here the efficacy of nicotinic acid as well as other materials used in treating the disease. Before the various methods of treatment are discussed, however, the following figures are presented in order to give some insight into existing conditions of pellagra in Alabama.

The report[2] of the Bureau of Vital Statistics of the State Health Department for 1936 states: "Deaths from pellagra numbered 306—20.5 per cent greater than the low record in the preceding year, and were practically equal to the number in 1934." In 1937 there was still a slight increase in the death rate of pellagrins, the total number of deaths being 311. The Division of Epidemiology in 1936 recorded 300 new cases of pellagra; in 1937, 270 new cases. During the first four months in the year 1936 there was a total of 77 new cases of pellagra reported, in the same four months of 1937, 47 new cases were recorded, and for the same period in 1938, 99 new cases were reported. Thus it can be seen that pellagra seems to be on the increase in Alabama as evidenced by the increase in death rate and also by an increase in its morbidity rate. Is this condition due to the present economic status or is there some other fundamental reason responsible?

Nicotinic acid seems to have been proven to be a valuable material in the treatment of pellagra. It is now being made available by several pharmaceutical houses. It is inexpensive and easily administered. It may be given intravenously, intramuscularly or orally. As to dosage, the following is quoted from a recent article[1] by Sebrell, Surgeon in Charge of Nutrition Investigation with the United States Public Health Service: "Spies observed beneficial effects in fifteen cases and has noted that increased porphyrinuria associated with pellagra disappeared. He recommends that daily administration of 500 mg. of nicotinic acid in 100 mg. doses by mouth or 40 to 80 mg. in sterile physiologic solution of sodium chloride in 10 to 20 mg. doses. He also recommends that all patients be given a well balanced diet when nicotinic acid is used as a supplement. Smith, Ruffin and Smith report recovery of one patient after the administration of 60 mg. of nicotinic acid daily for twelve days."

It seems that we are perfectly justified in our hopeful outlook that nicotinic acid will be a valuable therapeutic agent in the treatment of pellagra. Let us, however, consider its use as a preventive agent very conservatively. Its greatest value seems to lie in its use with patients having advanced cases of pellagra and if used with such patients it should decrease our death rate considerably. However, according to Sebrell,[1] "there is no information available on the effectiveness of nicotinic acid in the prevention of the disease. It has been shown further that the diets on which pellagra develop are also deficient in other respects. Attempts to prevent the disease by the widespread use of nicotinic acid might allow the symptoms of vitamin $B_1$ deficiency, protein deficiency, riboflavin deficiency or mineral deficiency to replace pellagra as a nutritional problem in this country."

The successful prevention of pellagra is still dependent upon two very important measures, namely, the use of a diet containing adequate quantities of foods that are rich in the anti-pellagra vitamin and the administration of dried powdered yeast. Certainly if every family in Alabama had for its use sufficient quantities of foods which are pellagra preventive there would

1. Sebrell, W. H.: Vitamins in Relation to the Prevention and Treatment of Pellagra, J. A. M. A. 110: 1665, May 14, 1938.

2. Report Relating to the Registration of Births and Deaths in the State of Alabama for the year ending December 31st, 1936.

be fewer cases of pellagra in the state. Sebrell[1] has listed in table form the "pellagra-preventive value of foods" that have been experimentally tested. In this list are found milk, lean meats, legumes and other foods which could be available in every farm home in Alabama. Sebrell[1] states: "The widespread distribution of powdered yeast, either free or at the cheapest possible price, is the most effective method of immediate control known."

Certainly in the case of pellagra "an ounce of prevention is worth a pound of cure." With the present known methods of prevention and treatment of the disease it seems highly advisable to first attempt to prevent by means of promoting the use of a diet containing a sufficient amount of the anti-pellagra vitamin; second, to continue the widespread use of powdered yeast, and then administer nicotinic acid in the prescribed doses to patients whose conditions warrant its use.

M. M. W.

## BUREAU OF PREVENTABLE DISEASES

D. G. Gill, M. D., Director

### A SMALLPOX EPIDEMIC IN ALABAMA

In 1925 Alabama had its last extensive epidemic of smallpox when there were almost 4300 cases of this disease reported. At that time the disease was quite widespread, with many counties reporting cases. The next two years showed a relatively high incidence, but since 1928 the cases have fluctuated from a low of 13 in 1936 to a peak of 464 in 1932.

The small number of cases has been due to absence of infection and not to lack of susceptibles as has been evidenced by the story whenever the infection was introduced. The latest example occurred in Lauderdale County very recently and is indicative of what might have occurred on a large scale in many parts of the state. The events were as follows: A man returned from a logging camp in Arkansas and became ill immediately. Headache, backache and fever for three days was followed by an eruption. No diagnosis was made and the man went his accustomed way. All was well until about two weeks later when certain of his contacts developed the same syndrome and the disease was recognized. All cases developing the disease had never been vaccinated and all had been exposed to the same infection. Twenty-three cases occurred in the first wave and an additional eight cases were reported later—still in the unvaccinated and still in contacts of the original man or of one of the twenty-three secondary cases. Control measures in the form of widespread vaccination were immediately offered to all and several thousand persons took advantage of this service. The eight cases last reported had not considered vaccination necessary.

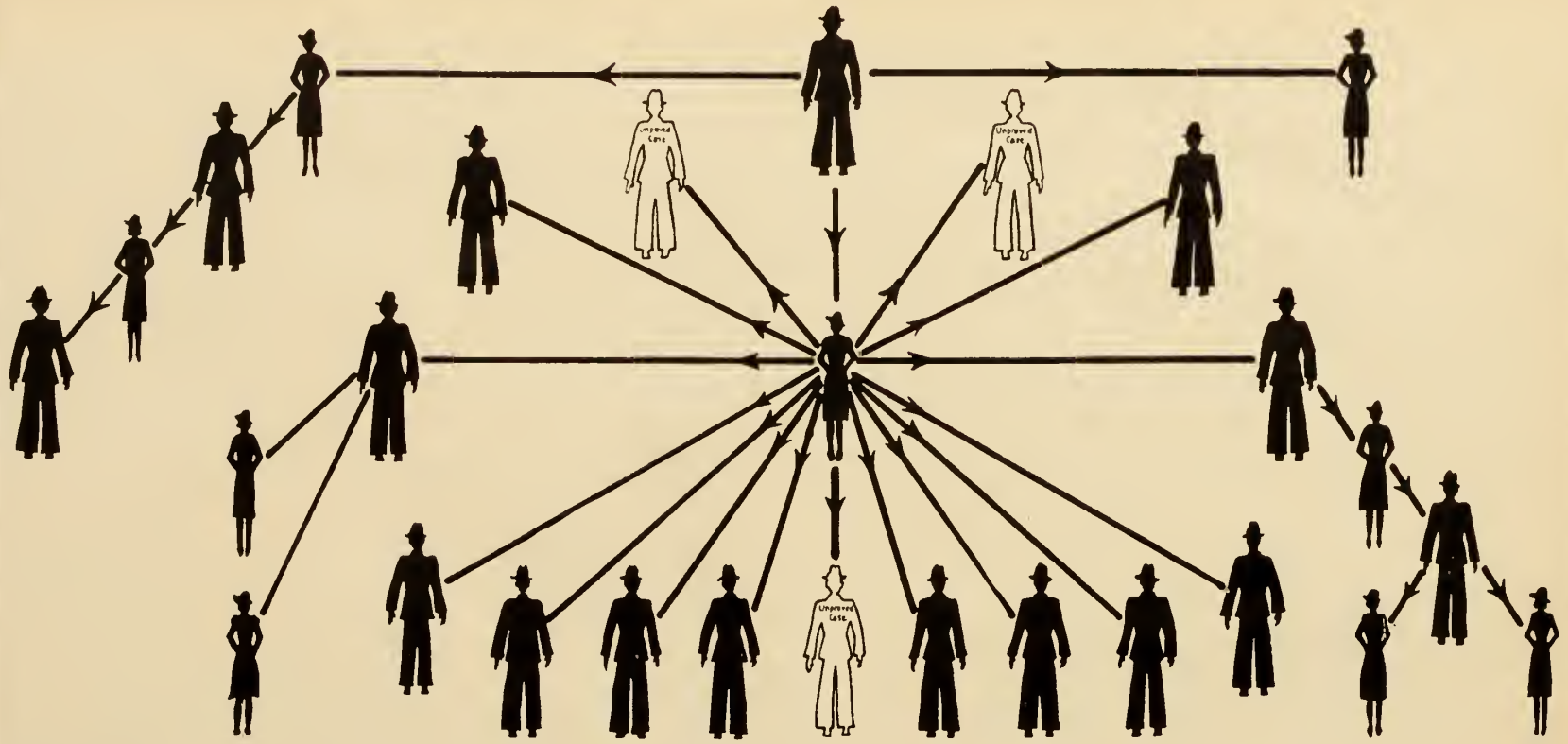
This localized epidemic may well be repeated in other parts of the state where there is a large group of unprotected individuals. Compulsory vaccination, of course, would have prevented this and other epidemics, but we do not have such compulsion as a statewide requirement. In certain counties the Boards of Education have made it a prerequisite to school attendance and in these counties it would be difficult for the disease to get started, recognizing, of course, that an interval of several years is required to build up an immune adult population.

It is almost 140 years since the practice of vaccination was introduced and its effectiveness proven, but experiences such as Lauderdale County has just had shows that there can be no let-up in vigilance in applying accepted procedures.

### TREATMENT OF EARLY SYPHILIS

A new outline of treatment for early syphilis (less than 4 years in duration) has been compiled. This outline has incorporated in it the suggestions of the Cooperative Clinical Group for the treatment of early syphilis. It is to be noted that a Herxheimer reaction is to be expected and is not to be prevented by the use of small doses of neoarsphenamine. In fact normal adult doses of neoarsphenamine are used from the first dose plus intramuscular bismuth injections for 4 doses. During the first six months of treatment, bismuth injections are given concurrently, as noted at the onset of treatment and then for two weeks at the end of and at the beginning of each neoarsphenamine course.

However, the Cooperative Clinical Group has shown that the use of bismuth and an arsenical together, that is concurrently on the same day or the same week, in a pro-




# HOW SYPHILIS SPREADS

BASED ON EPIDEMIOLOGIC INVESTIGATION MADE BY THE HEALTH OFFICER OF JACKSON COUNTY, ALABAMA

longed series is liable to be productive of disastrous results. If these two antisyphilitic drugs are being used concurrently in venereal disease clinics, it would be well to call attention to the danger of such an inferior scheme of treatment.

RECOMMENDED ROUTINE TREATMENT OF EARLY SYPHILIS

(4 Years or Less in Duration)

| Week | Neo. | Bismuth |
|---|---|---|
| 1 | 0.6-0.75 gm. | 2 cc. |
| 2 | 0.6-0.75 | 2 |
| 3 | 0.6-0.75 | 2 |
| 4 | 0.6-0.75 | 2 |
| 5 | 0.6-0.75 | |
| 6 | 0.6-0.75 | |
| 7 | 0.6-0.75 | |
| 8 | 0.6-0.75 | |
| 9 | 0.6-0.75 | |
| 10 | 0.6-0.75 | 2 |
| 11 | 0.6-0.75 | 2 |
| 12 | | 2 |
| 13 | | 2 |
| 14 | 0.6-0.75 | 2 |
| 15 | 0.6-0.75 | 2 |
| 16 | 0.6-0.75 | |
| 17 | 0.6-0.75 | |
| 18 | 0.6-0.75 | |
| 19 | 0.6-0.75 | |
| 20 | 0.6-0.75 | |
| 21 | 0.6-0.75 | |
| 22 | 0.6-0.75 | 2 |
| 23 | 0.6-0.75 | 2 |
| 24 | | 2 |
| 25 | | 2 |
| 26 | | 2 |
| 27 | | 2 |
| 28 | 0.6-0.75 | |
| 29 | 0.6-0.75 | |
| 30 | 0.6-0.75 | |
| 31 | 0.6-0.75 | |
| 32 | 0.6-0.75 | |
| 33 | 0.6-0.75 | |
| 34 | 0.6-0.75 | |
| 35 | 0.6-0.75 | |
| 36 | 0.6-0.75 | |
| 37 | 0.6-0.75 | |
| 38 | | 2 |
| 39 | | 2 |
| 40 | | 2 |
| 41 | | 2 |
| 42 | | 2 |
| 43 | | 2 |
| 44 | | 2 |
| 45 | | 2 |
| 46 | 0.6-0.75 | |
| 47 | 0.6-0.75 | |
| 48 | 0.6-0.75 | |
| 49 | 0.6-0.75 | |
| 50 | 0.6-0.75 | |
| 51 | 0.6-0.75 | |
| 52 | 0.6-0.75 | |
| 53 | 0.6-0.75 | |
| 54 | 0.6-0.75 | |
| 55 | 0.6-0.75 | |
| 56 | | 2 |
| 57 | | 2 |
| 58 | | 2 |
| 59 | | 2 |
| 60 | | 2 |
| 61 | | 2 |
| 62 | | 2 |
| 63 | | 2 |
| 64 | | 2 |
| 65 | | 2 |
| 66 | 0.6-0.75 | |
| 67 | 0.6-0.75 | |
| 68 | 0.6-0.75 | |
| 69 | 0.6-0.75 | |
| 70 | 0.6-0.75 | |
| 71 | 0.6-0.75 | |
| 72 | 0.6-0.75 | |
| 73 | 0.6-0.75 | |
| 74 | 0.6-0.75 | |
| 75 | 0.6-0.75 | |
| 76 | | 2 |
| 77 | | 2 |
| 78 | | 2 |
| 79 | | 2 |
| 80 | | 2 |
| 81 | | 2 |
| 82 | | 2 |
| 83 | | 2 |
| 84 | | 2 |
| 85 | | 2 |

1. Instruct patients to expect a Herxheimer reaction after the first injection. It will come on 4 to 6 hours *after the first injection* and consists of a chill, sharp rise in temperature and general malaise. *It will disappear in* 12 *to* 24 *hours.*

2. Use 0.15 gm. of neoarsphenamine per 25 pounds of body weight. The usual average dose is 0.6 gm. for women and 0.75 gm. for men.

3. If oil-soluble bismuth is used, give twice a week. If an oil-insoluble preparation is used, give once a week.

4. The use of arsenicals and bismuth each week for a period longer than 6 months is dangerous.

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## BUREAU OF VITAL STATISTICS

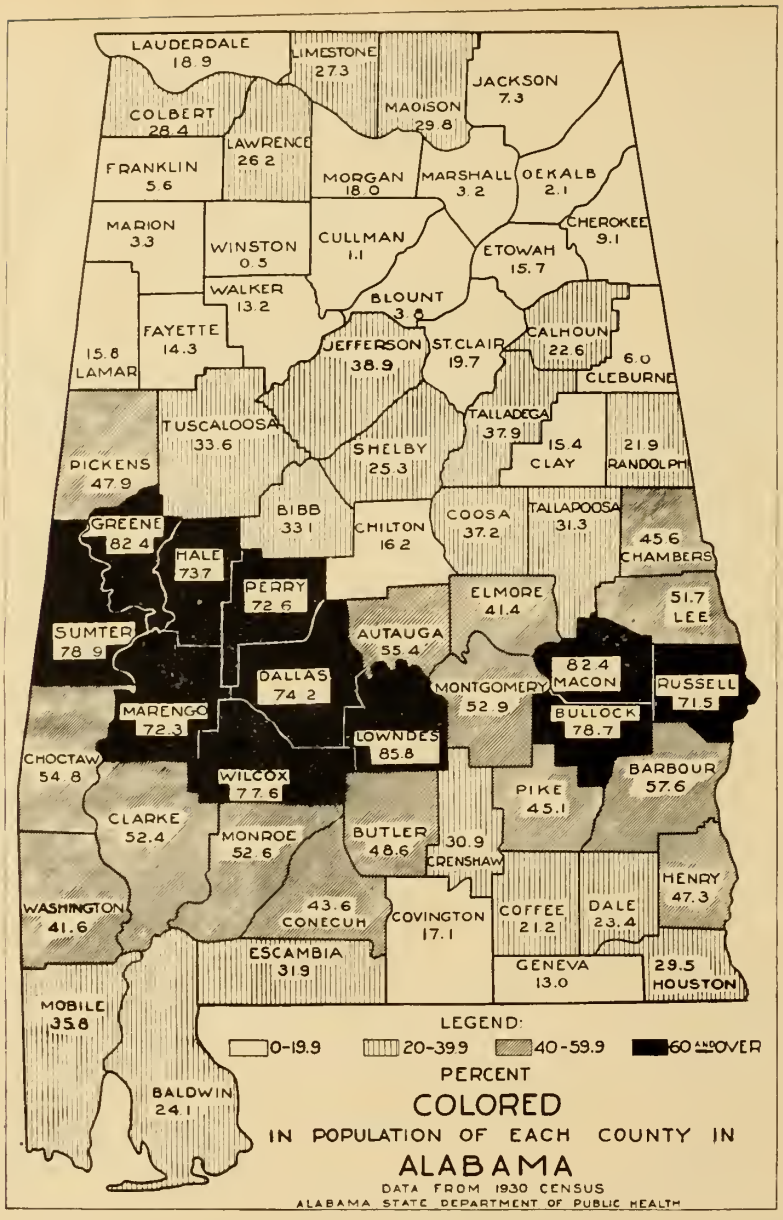
Leonard V. Phelps, S. B. in P. H., Director

### POPULATIONS

In considering the vital statistics of Alabama, the distribution of the population according to color is frequently required. The most accurate figures available are those published by the U. S. Bureau of the Census for 1930, the year in which the last census was taken. As the chart shows, counties east and west of Montgomery have a high per cent of the population colored. In general, the per cent decreases as one proceeds in a northerly or southerly direction. Especially is this true of the northern part. In Winston County less than one per cent was colored, compared with Lowndes County, in the south, with approximately 86 out of each 100 persons colored.

Populations estimated by color, as of July 1, 1938, are shown in the accompanying table. They were estimated on the assumption that the annual increase in population between 1920 and 1930, continued at the same rate subsequent to 1930. This, of course, was not true in all cases and estimates for certain counties may be higher than they should be. No other method is readily available whereby populations may be estimated with greater accuracy.

When the 1940 census is taken, it will be possible to revise estimates between 1930 and 1940. Unfortunately there was no federal census taken in 1935. If there had been, present populations could have been computed with more accuracy. It is hoped that in the future, there will be a census




taken every five years instead of every ten years, as in the past. With a somewhat more refined method of estimating populations than that previously described, the U. S. Bureau of the Census estimated the population of Alabama to be 2,895,000 on July 1, 1937, compared to that of the Bureau of Vital Statistics of the State Board of Health of 2,878,522. The former was 0.6 of one per cent higher than the latter.

ESTIMATED POPULATION AS OF JULY 1, 1938
(ALABAMA)

| County | Total | White | Colored |
|---|---|---|---|
| Autauga | 20,329 | 9,067 | 11,262 |
| Baldwin | 34,369 | 26,086 | 8,283 |
| Barbour | 32,714 | 13,903 | 18,811 |
| Bibb | 20,780 | 13,902 | 6,878 |
| Blount | 30,016 | 28,875 | 1,141 |
| Bullock | 20,016 | 4,263 | 15,753 |
| Butler | 30,731 | 15,796 | 14,935 |
| Calhoun | 61,881 | 47,896 | 13,985 |
| Chambers | 39,313 | 21,347 | 17,966 |
| Cherokee | 20,219 | 18,379 | 1,840 |
| Chilton | 26,031 | 21,840 | 4,191 |
| Choctaw | 20,513 | 9,272 | 11,241 |
| Clarke | 26,016 | 12,384 | 13,632 |
| Clay | 17,768 | 15,032 | 2,736 |
| Cleburne | 12,877 | 12,117 | 760 |
| Coffee | 34,553 | 27,228 | 7,325 |
| Colbert | 29,860 | 21,380 | 8,480 |
| Conecuh | 26,105 | 14,723 | 11,382 |
| Coosa | 12,460 | 7,812 | 4,648 |
| Covington | 43,971 | 36,452 | 7,519 |
| Crenshaw | 24,169 | 16,701 | 7,468 |
| Cullman | 47,503 | 47,028 | 475 |
| Dale | 23,546 | 18,036 | 5,510 |
| Dallas | 55,416 | 14,297 | 41,119 |
| DeKalb | 44,674 | 43,736 | 938 |
| Elmore | 39,263 | 23,008 | 16,255 |
| Escambia | 32,385 | 22,054 | 10,331 |
| Etowah | 76,376 | 64,385 | 11,991 |

| County | Total | White | Colored |
|---|---|---|---|
| Fayette | 18,509 | 15,881 | 2,628 |
| Franklin | 28,078 | 26,506 | 1,572 |
| Geneva | 30,739 | 26,743 | 3,996 |
| Greene | 21,040 | 3,724 | 17,316 |
| Hale | 27,857 | 7,271 | 20,586 |
| Henry | 23,843 | 12,565 | 11,278 |
| Houston | 52,857 | 37,317 | 15,540 |
| Jackson | 37,698 | 34,946 | 2,752 |
| Jefferson | 529,239 | 322,836 | 206,403 |
| Lamar | 18,001 | 15,139 | 2,862 |
| Lauderdale | 42,400 | 34,386 | 8,014 |
| Lawrence | 29,062 | 21,448 | 7,614 |
| Lee | 31,789 | 13,703 | 18,086 |
| Limestone | 40,886 | 29,765 | 11,121 |
| Lowndes | 22,878 | 3,249 | 19,629 |
| Macon | 29,957 | 5,302 | 24,655 |
| Madison | 75,373 | 52,912 | 22,461 |
| Marengo | 36,716 | 10,134 | 26,582 |
| Marion | 29,152 | 28,190 | 962 |
| Marshall | 45,544 | 44,041 | 1,503 |
| Mobile | 133,048 | 85,417 | 47,631 |
| Monroe | 31,027 | 14,707 | 16,320 |
| Montgomery | 113,010 | 53,228 | 59,782 |
| Morgan | 50,986 | 41,808 | 9,178 |
| Perry | 27,202 | 7,453 | 19,749 |
| Pickens | 24,902 | 12,949 | 11,953 |
| Pike | 32,727 | 17,967 | 14,760 |
| Randolph | 26,861 | 20,978 | 5,883 |
| Russell | 34,258 | 12,816 | 21,442 |
| Shelby | 27,964 | 20,889 | 7,075 |
| St. Clair | 25,417 | 20,410 | 5,007 |
| Sumter | 28,026 | 5,913 | 22,113 |
| Talladega | 48,648 | 30,210 | 18,438 |
| Tallapoosa | 32,351 | 22,225 | 10,126 |
| Tuscaloosa | 72,584 | 48,196 | 24,388 |
| Walker | 66,573 | 57,852 | 8,721 |
| Washington | 18,048 | 10,540 | 7,508 |
| Wilcox | 24,880 | 5,573 | 19,307 |
| Winston | 16,578 | 16,495 | 83 |
| Entire State | 2,910,562 | 1,878,683 | 1,031,879 |

## BUREAU OF SANITATION

G. H. Hazlehurst, C. E., M. C. E., Director

### THE TREND IN MUNICIPAL SEWAGE TREATMENT

It is not unusual to hear a municipal official remark, "We have the best water supply in the country." Public recognition of sewage treatment plants is considerably more uncommon. However, the trend in recent years has been toward the design and installation of modern plants, properly located, beautified, and capable of producing a treated sewage which may be disposed of in a satisfactory manner. This type of plant is the "pride and joy" of the municipality, builder, and designer. Its description is often found in technical literature as well as in local newspapers, and the public which it serves is justly proud.

Perhaps the most widely used treatment plant in past years, but one which is now becoming obsolete for municipalities, is the septic or plain sedimentation (single story) tank. Except for relatively small and usually private installations this type of tank is being displaced largely by Imhoff tanks or by plain sedimentation tanks combined with separate sludge-digestion units.

The main purpose for treating sewage is to prepare it for disposal by dilution. Screening and sedimentation are primary methods of treatment. By these methods a portion of floating and settleable solids is removed, preventing or minimizing the formation of unsightly scum and putrefying sludge banks in the receiving stream. Chemicals are sometimes added to cause coagulation and aid in sedimentation. The need for follow-up or supplementary treatment is indicated when the body of water into which the settled sewage discharges is inadequate as a natural purifying agency. If the burden placed upon the water is too great, self purification is retarded. Water supplies may become polluted, oyster beds infected, and in some cases offenses to the sight and smell created. The water should be protected to permit its economic employment for other essential purposes.

Sewage treatment in general depends upon the physical separation of some of the objectionable waste matters and the biological modification of the remainder, that is, the separation of suspended or settleable matter and the destruction of putrescible organic matter in the liquid sewage. Final mineralization by the processes of oxidation and bacterial action is the goal. In addition to the proper disposal of the liquid waste it is evident that the screenings, skimmings, and settled sewage or sludge must also be disposed of. Treatment and disposal processes for the latter depend largely upon the condition of the solids which are removed by the primary processes.

While modern processes depend upon separate compartments or, more generally, upon separate units for settling the fresh sewage and for digesting the settleable solids or sludge the septic tank attempts both in the same compartment. The two processes interfere with each other. The escape of solids in the effluent (settled sewage) may at times increase the suspended solids content above that of the influent (raw sewage). This is generally caused by excessive accumulation of sludge or the raising of sludge particles by the entrained gases as they are released. This may cause clogging of filters where such are used for secondary treatment. The septic character of the effluent often renders it offensive and unfits it for further biological treatment. The tanks are difficult to clean, especially in breaking up the scum layer which is sometimes tough and several feet thick. The

nature of the sludge, which may contain a large proportion of insufficiently digested solids, is such as to prevent proper drying and disposal. The bulk often makes burial impracticable. When the sludge is permitted to remain in the tank too long, it is some times necessary for the workman to spade the contents to make their removal possible by bailing. Drain valves become useless unless operated regularly. In one instance the responsible persons even permitted the tearing out of one end of the tank to facilitate cleaning out the caked scum and sludge.

Until a few years ago the municipal sewage treatment plants in Alabama consisted largely of septic tanks. During the past four years, with the aid of federal agencies in most instances, modern treatment plants have been installed in eleven Alabama municipalities. These make up approximately 12% of the total eighty-one treatment plants in the state.

Three of these consist of Imhoff (two story) tanks and sludge drying beds—post chlorination being used at one. The remaining eight plants use sedimentation and separate sludge digestion. This treatment is supplemented by chlorination at two plants and by chlorination and chemical precipitation at one. Public water supplies are obtained from the sewage receiving stream some ten or twelve miles below another two of these eight plants. Primary sedimentation at these is supplemented by trickling filters, secondary sedimentation and chlorination.

Developments in mechanical equipment have aided materially in sewage treatment. New flexibilities, new efficiences, and new freedom from the drudgery and uncertainty of human handling have been provided by sewage treatment machinery. Suitable pumps for pumping both sewage and sludge have made the installation of gravity works impractical in many instances. This has resulted in decreased construction costs and more efficient operation in general.

It is encouraging to know that methods of sewage treatment are improving. Where there is a possibility of the diluting waters being inadequate and where monies are available for only primary treatment at the time of construction, plants are being built with provisions for future treatment units. Regardless of the excellence of design and construction, however, it is well to remember that the successful results of sewage treatment are obtained from only careful and intelligent operation.

Due to lack of personnel, routine inspections of sewage treatment plants have not been included in the activities of the Division of Engineering of the State Department of Public Health. However, field work has included investigations prior to the installation of proposed systems or improvements to old ones. Inspections are made of new plants upon their completion and special inspections and investigations are made for operation of the old plants. These are for the purpose of offering operating suggestions and making recommendations toward eliminating nuisances and unfavorable conditions. In order to acquaint engineers and others interested in the items considered in the review of plans and specifications or sewer systems and disposal plants, instructions entitled "Items Considered in the Review of Plans and Specifications on Sewage Systems and Sewage Treatment Plants by the State Board of Health," consisting of twenty-seven pages, has been prepared. A preliminary draft was first sent to some twenty-five practicing engineers, state sanitary engineers, and educators requesting their review and comment. The various criticisms received were studied, the instructions reworked and a supplementary explanation added. The final draft was mimeographed. It should be of decided benefit not only to those interested in the design of sanitary sewers and sewage disposal plants but also the Division of Engineering in checking and approving plans and specifications.

Sewage works engineers, public health officials, and municipal authorities should not be satisfied with anything less than the most modern and practical sewage treatment plant, looking toward the ultimate prevention of stream pollution.

T. H. M.

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"Official public health services are properly described as those applications of preventive medicine which are authorized by law as a function of government for social ends. Not theory of public health but its practice; not curative but preventive medicine; not voluntary or unofficial but governmental agencies; services not for the individual but for the community."—*Haven Emerson.*

## CURRENT STATISTICS

*PREVALENCE OF COMMUNICABLE DISEASES IN ALABAMA

| 1938 | March | April | Estimated Expectancy April |
|---|---|---|---|
| Typhoid | 12 | 7 | 18 |
| Typhus | 3 | 15 | 7 |
| Malaria | 59 | 113 | 125 |
| Smallpox | 4 | 26 | 15 |
| Measles | 4367 | 3668 | 636 |
| Scarlet fever | 54 | 38 | 43 |
| Whooping cough | 127 | 228 | 205 |
| Diphtheria | 49 | 36 | 49 |
| Influenza | 659 | 268 | 357 |
| Mumps | 187 | 200 | 167 |
| Poliomyelitis | 4 | 2 | 2 |
| Encephalitis | 4 | 3 | 3 |
| Chickenpox | 245 | 294 | 185 |
| Tetanus | 6 | 7 | 5 |
| Tuberculosis | 217 | 265 | 348 |
| Pellagra | 19 | 31 | 46 |
| Meningitis | 31 | 27 | 14 |
| Pneumonia | 440 | 360 | 471 |
| Syphilis | 1881 | 2573 | 204 |
| Chancroid | 5 | 8 | 9 |
| Gonorrhea | 327 | 333 | 152 |
| Ophthalmia neonatorum | 2 | 0 | 1 |
| Trachoma | 0 | 0 | 0 |
| Tularemia | 1 | 1 | 2 |
| Undulant fever | 1 | 3 | 1 |
| Dengue | 1 | 0 | 0 |
| Amebic dysentery | 0 | 1 | 0 |
| Rabies—Human cases | 0 | 0 | 0 |
| Positive animal heads | 85 | 79 | .... |

*As reported by physicians and including deaths not reported as cases.
The Estimated Expectancy represents the median incidence of the past nine years.
With the venereal diseases, clinic cases were not included prior to 1936.

# *Book Abstracts and Reviews*

**Treatment in General Practice.** By Harry Beckman, M. D., Professor of Pharmacology at Marquette University, School of Medicine, Milwaukee, Wisconsin. Third edition, revised and entirely reset. 787 pages. Philadelphia and London: W. B. Saunders Company. 1938. Cloth. $10.00 net.

When a man has reviewed a few hundred books he reaches a stage where his enthusiasm for any one volume is not likely to run away with him. Books after books have gone through the reviewer's hands and most of them have received favorable comment but few have aroused the enthusiasm that Beckman's volume stirs up. In his book on treatment, Beckman has culled the literature and has presented, generally in the words of the original author, what he considers to be the ideal methods of treatment of the various medical diseases. The quotations have been well selected, the editorial notes seem to emanate from a scholar and a man of experience. The finished book is a challenge to the nihilistic attitude toward therapeutics which was held in medical schools during the past two decades. Physicians who took their medical training in the 1920's were taught the composition of drugs and their effect on laboratory animals and man but little time was devoted to the practical application of this knowledge to the treatment of disease. Instructors in therapeutics seemed more interested in convincing the student of the lack of value of certain time-honored drugs than in teaching him the value of certain preparations that experience had proved to be worth while. The instructor seemed to feel that with a training in laboratory pharmacology, the young physician would be able to work out his own methods of treatment on a truly scientific basis. Most of us who had such training realize its inadequacy and any one who is interested in being familiar with the peculiar therapy of each disease as it has gradually evolved out of the experience of physicians all over the world will find just such information in this book.

New arrangement of chapters and the exclusion of matters dealing with obstetrics, drug addiction and tropical diseases, keep the book at its former size despite numerous additions and revisions. Some of the new entities discussed in this edition are Addison's disease, celiac disease, certain menstrual disorders, myasthenia gravis, nutritional edema, sinusitis, physical and drug allergy, progressive muscular dystrophy, torulosis, prophylaxis of venereal diseases and xerophthalmia.

C. K. W.

**A Layman's Handbook of Medicine.** By Richard C. Cabot, M. D. Revised Edition. 540 pages with 31 illustrations. Houghton Mifflin Co., The Riverside Press, Cambridge, Boston. Cloth. $2.50.

A Layman's Handbook of Medicine is a well written book and gives a proper insight into the field of medicine. It is difficult to translate medical terms into the language of the layman without becoming lengthy. Although the book has 540 pages, the author makes no excuse for its length, since to shorten it would necessarily defeat its purpose.

There are a few points discussed with which some physicians would disagree. In the main, though, it is a book that every physician would do well to recommend to his patients for reading, since it is a healthy, wholesome discussion of medical problems.

W. H. Y. S.

**Medical Writing.** By Morris Fishbein, M. D., Editor, The Journal of the American Medical Association; with the assistance of Jewel F. Whelan, Assistant to the Editor, Chicago. Cloth. Price, $1.50. Pp. 212. Chicago: American Medical Association, 1938.

Uniformly, the reviewer, as a managing editor, has close at hand a standard English dictionary, a medical dictionary and Fishbein's Medical Writing. This has been true since Dr. Fishbein's "The Art and Practice of Medical Writing" came to hand several years ago. The new book is an improvement over the old not only because of internal changes but also because of size. The format is all that could be desired.

D. L. C.

**The Conquest of Cholera.** By J. S. Chambers, M. D., Professor of Hygiene and Public Health, and Director of Student Health Service, University of Kentucky. 355 pages. The Macmillan Company. New York, N. Y., 1938. Cloth. Price $4.75.

The Conquest of Cholera is a comprehensive historical review of the cholera epidemics of the United States from 1833 to 1873. Material has been carefully gathered from newspaper files, public and private records of the period and woven into an interesting epidemiologic study of the several waves of cholera that swept this country. The course of the disease is faithfully

traced, morbidity and mortality figures are given for the various cities and towns as cholera appeared in them; medical knowledge from the time of the first invasion to the final advancement of science resulting in the stamping out of this disease in this country is fully presented.

The book is well written and is a real contribution to the medical history of the United States.

C. B.

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**Hernia. Anatomy, Etiology, Symptoms, Diagnosis, Differential Diagnosis, Prognosis and the Operative and Injection Treatment.** By Leigh F. Watson, M. D., Member of Attending Staff of California Lutheran Hospital and Methodist Hospital of Southern California, Los Angeles, California. Second edition. St. Louis, Mo. C. V. Mosby Company, publishers. 1938. 591 pages and 281 illustrations. Price $7.50 net. Cloth.

The work consists of 559 pages of text and an adequate bibliography placed after each portion of the subject matter. There are 281 illustrations, most of which are illustrative of the subject in hand. Hernias of all types are covered in detail. Fortunately for all, however, Doctor Watson makes no effort to describe all of the hundreds of modifications in the operative treatment of hernia but limits his operative discussions to relatively few of the methods which he himself has used or believes to be the best for the type of hernia in question.

This historical discussion of the growth of surgery as a whole, and particularly of surgery as related to hernias, is decidedly interesting. The anatomy, etiology, symptoms, diagnosis, differential diagnosis and prognosis are adequately covered, and it is convenient to have these phases of the subjects in the same volume with the operative technic. The chief addition noted in the second edition of Doctor Watson's work is the inclusion of several chapters, covering 66 pages dealing with the injection treatment of hernia. Doctor Watson believes, that in properly selected cases, this method has been a great addition to the modern treatment of hernia. He uses it extensively and makes a note of the fact that it is becoming rather generally recognized by the different state compensation commissions as the ideal means of treating occupational hernia. This portion of the book is very profusely illustrated and might be considered a monograph on this particular phase of the subject. The last chapter, dealing with medicolegal aspects of hernia, has been rewritten to conform with the present-day concept as related to the industrial hazard.

This volume is considered to be a valuable addition to one's library and would seem to justify itself even though one owned the first edition.

J. L. B.

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**A Textbook of Ophthalmology.** By Sanford R. Gifford, M. A., M. D., F. A. C. S., Professor of Ophthalmology, Northwestern University Medical School, Chicago; Attending Ophthalmologist, Passavant Memorial, Cook County, Wesley Memorial and Evanston Hospitals. 492 pages with 249 illustrations. Philadelphia and London: W. B. Saunders Company, 1938. Cloth. $4.00 net.

A singular enthusiasm attaches to the examination of this book in that the reviewer was fortunate in having attended postgraduate lectures by the author. The direct, forceful, evenly balanced and systematic presentation which characterizes his lecture room is found also in all of his writings. One feels that Doctor Gifford's contributions to ophthalmic literature are doubly valuable in that they are the expression not only of his own extensive experience, but also they reflect the wisdom of his illustrious preceptor and father, the late Doctor Harold Gifford.

The book is intended for medical students and general practitioners. Accordingly, it places emphasis on really important facts. All recent advances in ophthalmology are included. In the section on objective examination, the combined instrument—corneal microscope and slit lamp—is given the consideration befitting "a diagnostic instrument second only to the ophthalmoscope in importance." Adequate reference is made also to ophthalmoscopy in monochromatic light and to stereo-ophthalmoscopy. The chapter on errors of refraction includes consideration of special optical appliances such as telescopic magnifiers and contact glasses. Succeeding chapters treat of diseases of the various structures of the eye and its adnexa, each being prefaced with anatomical considerations and description of congenital anomalies. Special chapters are devoted to injuries of the globe, therapeutic agents used in ophthalmology and the eye in general diseases. A novel feature in that found in the appendix: Appraisal of Loss of Visual Efficiency —Standard Method Approved by the House of Delegates of the American Medical Association, May 26, 1925.

The book is beautifully and generously illustrated. It is safe to say that this excellent work bids fair to take the lead among practical texts on ophthalmology.

J. T. C.

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**Surgical Pathology of the Diseases of the Neck.** By Arthur E. Hertzler, M. D., Surgeon to the Agnes Hertzler Memorial Hospital, Holstead, Kansas; Professor of Surgery, University of Kansas. J. P. Lippincott Company, publishers. Philadelphia. 237 pages with 206 illustrations. Cloth.

From Hertzler's prolific and original pen have already come eight monographs on surgical pathology. The volume dealing with diseases of the neck is the ninth of a series to which the author expects to add at least one more. Doctor Hertzler has seen enough pathology to be able to look upon a disease as a dynamic thing—with typical onset, progress and termination. No single picture—clinical or pathology—represents the whole disease. Only by an understanding of the life history of a disease and the clinical and pathologic picture presented at its various stages, can one hope to diagnose accurately the various swellings found in a complicated region like the neck. With these principles of pathology constantly before him, Hertzler describes the various lesions which the surgeon may find in the neck.

Chapters deal with Hodgkins' Granuloma, Lymphosarcoma, Lympho-Epithelioma, the Rare Primary Tumors of the Neck, Diseases of Vestigial Rests, Benign Tumors of the Neck, Diseases of the Salivary Glands, and Secondary Tumors of the Neck. Most of the conditions discussed are illustrated by well chosen photographs of

clinical cases and plates showing the gross and microscopic appearance of the operative specimens.

To internist and surgeon alike, Hertzler's book should prove a valuable guide to the diagnosis of swellings in the region of the neck. The author has done much to simplify a complicated field of pathology.

C. K. W.

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**The 1937 Year Book of Dermatology and Syphilology.** By Fred Wise, M. D., Professor of Clinical Dermatology and Syphilology, New York Postgraduate Medical School and Hospital of Columbia University; Member of the American Dermatological Association, Inc.; and Marion B. Sulzberger, M. D., Assistant Professor of Clinical Dermatology and Syphilology, New York Postgraduate Medical School and Hospital of Columbia University, Member of the American Dermatological Association, Inc. The Year Book Publishers, Inc. Chicago. 1938. 736 pages 110 figures. Cloth. $3.00.

This is a summary of the literature on dermatology and syphilology which appeared during 1937. The introduction presents a guide for general practitioners on the modern treatment of common fungus infections. The various articles reviewed are commented on by the editors whenever such comment is necessary.

The authors are to be complimented on the excellent style in which the articles are presented.

W. H. Y. S.

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**Practical Bacteriology, Haematology and Animal Parasitology.** By E. R. Stitt, M. D., Sc. D., LL. D.; Rear-Admiral, Medical Corps, and Surgeon-General, U. S. Navy, Retired. Formerly President, National Board of Medical Examiners; Head of Department of Tropical Medicine, U. S. Naval Medical School; Associate Professor of Medical Zoology, University of the Philippines; Paul W. Clough, M. D., Chief of Diagnostic Clinic, Johns Hopkins Hospital; Associate in Medicine, Johns Hopkins University; Associate Professor of Medicine, University of Maryland; and Mildred C. Clough, M. D., formerly Fellow in Bacteriology and Instructor in Medicine, Johns Hopkins University. Ninth edition. 1938. 961 pages. P. Blakiston's Son & Co., Inc., Philadelphia. Cloth $7.50.

The present edition will take its place with those which have appeared previously as being perhaps the most complete and practical book on the subjects treated. The printing and make-up are good and the illustrations excellent.

The text has been completely rewritten, incorporating new material. In this edition, even more than in those which preceded it, an effort has been made to correlate data obtained by the various laboratory procedures with the clinical picture. This feature is of especial interest to the man who does not have access to well equipped libraries. Of special interest is the Index of Useful Laboratory Procedure which offers assistance in the selection of appropriate tests to be made.

In the discussion of the filterable viruses particular attention has been given to presentation of the symptomatology, due to the fact that much of this material is to be found only in the recent literature, as for the most part it is dealt with inadequately, or not at all, in the standard textbook.

All of the section on histologic technique and much of that on nutrition which has appeared in previous editions is now omitted. Nevertheless, this edition contains 113 pages more than the eighth.

For the laboratory worker the table on Diagnosis of Infectious Diseases by Animal Inoculation is useful.

The chapters on Spirochetes and Rickettsias have been rewritten.

A new chapter on fungi has been prepared using as a basis of classification Dodge's Medical Mycology, but as many of the names are unfamiliar the different diseases are taken up under the name of the disease itself instead of that of the parasite.

Kahn has revised the discussion of the serodiagnostic methods for syphilis with special reference to the Kahn test. The consideration given to other equally useful procedures of this nature is inadequate and one gains the impression that the relative merits of the various serologic tests for syphilis have not been sufficiently discussed.

In no part of the book has revision been greater than in that devoted to hematology. Special attention has been given to the technique of blood examinations and a classification of anemias on the basis of their pathogenesis has been attempted with the distinctive features of the more important types given in tabular form.

In the section on typhoid fever, in discussing the antigens of the typhoid bacillus, it is somewhat surprising to find a statement that the somatic or O antigen is destroyed by formalin. This idea, which was originally held by Felix, has more recently been abandoned. Thus, it should not be said that a formalized suspension of the organism, unless it be of the O variant, contains only the H antigen.

In the discussion of rabies no mention is made of tissue culture methods of growing the virus, nor is anything said about the use of mice as test animals for the inoculation of suspected material. Aside from a few criticisms of this nature one would have difficulty in raising any serious objection to the text as presented.

S. R. D.

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**Management of the Sick Infant and Child.** By Langley Porter, B. S., M. D., M. R. C. S. (Eng.), L. R. C. P. (Lond); Dean, University of California Medical School and Professor of Medicine; Formerly, Professor of Clinical Pediatrics, University of California Medical School; Visiting Pediatrician, San Francisco Childrens Hospital; Consultant to the San Francisco Department of Public Health, San Francisco, California; and William E. Carter, M. D., Director, University of California Hospital Out-Patient Department; Formerly, Chief of Childrens Clinic, University of California Hospital, San Francisco; Attending Physician, San Francisco Hospital; Attending Physician, Los Angeles County Hospital, San Francisco, California. Fifth edition. Illustrated. 874 pages. Cloth. 1938. C. V. Mosby Company. St. Louis, Mo. Price $10.00.

A book that passes its third edition has proved its value to the medical profession. Porter and Carter's book has reached its fifth edition. It has been thoroughly rewritten to make its material up-to-date. All chapters have been lengthened to include new knowledge and new chapters dealing with the behavior of children and allergy in children have been included. Few other pediatric books include any reference to these new fields of pediatrics.

Revision of the chapters on infectious diseases has been necessitated because of the newer ideas of immunity.

As a quick reference volume, this work will serve its most useful purpose. Its 250 pages deal exclusively with drugs and methods of treatment. Appealing primarily to the pediatrician, the book should be of considerable value to practicing physicians.

R. P.

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**A Text-Book of Pathology: An Introduction to Medicine.** By William Boyd, M. D., LL. D., M. R. C. P. Ed., F. R. C. P. Lond., Dipl. Psych., F. R. S. C. Professor of Pathology and Bacteriology in the University of Toronto; Formerly Professor of Pathology in the University of Manitoba, Winnipeg, Canada. Third edition, enlarged and thoroughly revised, published 1938. Octavo, 1,064 pages, illustrated with 459 engravings and 16 colored plates. Cloth. $10.00 net. Lea and Febiger, Philadelphia.

Though much new material appears in this edition, presentation in small type of the clinical sections on Symptoms and The Relation of Symptoms to Lesions has resulted in no material increase in the size of the book. From the standpoint of the student the inclusion of a "descriptive outline" of each organ in a state of health should be helpful as detailed description of the gross appearance of an organ is not easy and an understanding of the normal size, color, etc., must be known accurately before pathologic changes can be comprehended.

A section on sudden death has been added, the anemias and pneumonias have been reclassified and the general discussion of the viruses has been rewritten, while those of the central nervous system have been grouped tgether, an arrangement serving to emphasize their relationship to each other.

The style of the author is attractive and his presentation of the subject clear so that the book serves well as an introduction to medicine and surgery, in spite of a lack of detail in the discussion of certain subjects.

S. R. D.

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**General Hygiene and Preventive Medicine.** By John Weinzirl, M. S., Ph. D., Dr. P. H., Late Professor of Bacteriology and Director of the Alice McDermott Foundation of the University of Washington; Technical Adviser on Public Health to the Washington State Planning Council; and Secretary of the Washington State Tuberculosis Association. Edited by Adolph Weinzirl, B. S., M. D., C. P. H., Health Officer, Portland, Oregon; Clinical Professor of Public Health, University of Oregon Medical School; and Assistant Commissioner of Health, Seattle, Washington; Formerly Epidemiologist to the Baltimore City Health Department, Baltimore, Maryland. 424 pages. Philadelphia, Lea and Febiger, 1937. $4.00 net.

Written for advanced college and medical students, nurses and teachers in training, this book tends to particularly emphasize the methods of controlling diseases. All other matters are subordinate to this announced purpose. The preface and introduction prepare the reader for incompleteness and possible inaccuracies. The eight parts of the book are devoted to methods of controlling disease and in these parts there are discussed thirty-two specific methods ranging from immunization to control by regulating humidity and ventilation. A sufficient account of the history, cause and epidemiology of each disease is given to provide a scientific basis for the prophylaxis. As there are but 400 text-pages there cannot be very detailed and practical descriptions of each of the thirty-two methods of controlling disease. Collateral reading is suggested yet there is not a reference list of material nor a bibliography. Treatment rightly finds little space in this volume, the author stating that even this little is "mainly to show how rarely specifics for disease are available." Though published in 1937 the morbidity and mortality statistics quoted are not later than 1933. New terms are introduced for immunizations to identify the agents used. Such words as vaccination, bacterination, serumation and toxination may clarify the matter to the nonmedical mind. We applaud such frank statements as, "The child that is allowed to reach school age without having been protected by toxination should be regarded as a neglected child in so far as diphtheria is concerned." Some discussions seem confusing. Typhus is considered entirely as the ancient or epidemic form and 2043 cases are reported in the United States in 1933; all in the text describing the body louse as the carrier. These cases undoubtedly refer to the endemic typhus or Brill's disease, yet this form, an increasingly serious problem in the southeastern states, is dismissed with two lines. One chapter deals with "Specific Surgery" as a method of controlling disease, yet it is not mentioned as a most valuable method of control for pulmonary tuberculosis. Only under treatment of tuberculosis do we read: "In appropriate cases this (treatment) may be reinforced by surgical measures." The reviewer, not feeling competent to criticise the bacteriological content of the book referred a few passages to bacteriologists and from the comments gathers the idea that some of the statements are at least confusing. The volume may not fill a want as the material is found in more detail in larger textbooks.

Being suggestive rather than exhaustive and interesting to read, it affords the student a grasp of the fundamentals of preventive medicine and enables him to systematize his knowledge of the broad field of hygiene.

J. S. H.

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**Tuberculosis Among Children And Young Adults.** By J. Arthur Myers, Ph. D., M. D., F. A. C. P., Chief of Medical Staff and Director of Tuberculosis Activities, Lymanhurst Health Center; Professor of Preventive Medicine, University of Minnesota; with chapters by C. A. Stewart, M. D., Ph. D., Clinical Professor of Pediatrics, University of Minnesota; and by Paul W. Giessler, M. D., F. A. C. S., Assistant Professor of Orthopedic Surgery, University of Minnesota, with an introduction by Allen K. Krause, M. D., Lecturer in Medicine, Johns Hopkins University; Editor, American Review of Tuberculosis. Second Edition 401 pages with 71 illustrations; Charles C. Thomas, Publisher, Springfield, Illinois and Baltimore, Maryland, 1938. Cloth $4.50.

The artillery forces would consider they had a powerful battery at their disposal if they had an implantation of their highest caliber guns in an implacement.

By the same token we have in the author of this book a personage outstanding in the field of tuberculosis, a man whose contributions have advanced the everchanging horizon of our everchanging knowledge as regards this disease.

The co-authors have aided by contributing chapters along very special lines which have welded the book into a high caliber production of extreme preciseness, clearness and high visibility.

The questions that the more and more enlightened public will be asking their family physicians are herein answered by brief, snappily worded discussions and each chapter is concluded with a very comprehensible summary.

In short this is a book that should be on the shelf of every practicing physician as an ever ready reference and such an edition will be a face saving product when his pay patients which are usually the most intelligent ask leading questions on this ever increasingly important disease of tuberculosis.

The book is completely and meritoriously indexed.

H. T.

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**Final Report of the Mixed Committee of the League of Nations on The Relation of Nutrition to Health, Agriculture and Economic Policy, Geneva, 1937.** Columbia University Press, New York. 327 pages. $2.00.

A mixed committee was appointed at the sixteenth assembly of the League of Nations in 1935 to report on the Relation of Nutrition to Health, Agriculture and Economic Policy. This important book, published by the Columbia University Press, is the full report of the Committee composed of nutrition experts from thirteen countries.

The book is divided into three parts. Part I explains the function of the mixed committee, and discussions are included regarding the existing conditions and the ultimate correction of those conditions. It is understood that the aim of the different nations must be to obtain an adequate diet for their people. An adequate diet is defined as one that includes sufficient energy bearing and protective foods for optimum health. It is explained that some nations of people have a sufficient supply of all types of food, yet do not have a balanced diet. However, in some notable instances, the natural supply of food is so limited, that it is impossible to get the proper amounts of energy bearing and protective foods.

Part II deals with nutrition and health. It is agreed that millions of people in all parts of the world are suffering from inadequate physical development or from disease due to malnutrition. This is a pathetic situation existing in a world which has agricultural resources capable of fulfilling all possible needs and demands. This condition is a challenge to constructive statesmanship and international cooperation. The future progress of nutrition depends upon individual governments taking the lead and being aided by enlightened public opinion. Child health is stressed. Childhood malnutrition is to be combated more successfully than in later years. Damage done in faulty feeding in the prenatal period, in childhood and in adolescence cannot be repaired in later life. The report states that, "The health of the child is the kernel of the problem of proper nutrition."

Part III reviews recent trends in food habits. It is suggested that the protective foods should be the primary thought in the selection of foods. Milk, green vegetables and fresh fruits should be present. It appears that food consumption depends upon two factors: the amount of income and the intelligent use of that income in purchasing food products.

The Committee strongly believes that improved nutrition must immediately, or in a short lapse of time, prove of general benefit to agriculture and fishing. The development and preservation of the fishing industry by national and international action would constitute a valuable contribution to the nutrition policy.

The mixed committee has accomplished a task that no other group has attempted, namely; having recorded an excellent, informative description of the international problem of nutrition. With these authoritative conclusions before them, public health officials and law-making bodies can and will take steps to improve the nutrition habits of their people. Nutrition is one of the world's greatest problems. Proper nutrition can do much to advance and maintain races of healthy people.

R. T. C.

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**Malnutrition: The Medical Octopus.** By John Preston Sutherland, M. D., Sc. D. Meador Publishing Company, Boston, 1937. 368 pages. $3.00.

The author here presents his views concerning diet as gathered from his various experiences in the medical world in association with everyday living. Some of his ideas are startling and unorthodox in comparison with the generally accepted scientific views concerning nutrition. The general theme of the book is "Nature Knows Best," and the suggestion is given that when mankind transgresses the laws of nature it is certain to experience suffering, disease, and death.

The relation of milk to human nutrition is discussed at length. The importance of breast-feeding is stressed, and a warning is given that any form of milk other than human milk is imperfect for human nutrition and should not be used except as a last resort. The opinion that sub-human milk is not essential nor advisable in the human diet after the weaning period is presented, then follows a lengthy discussion in an attempt to substantiate this idea. Other foods of the everyday diet are discussed, with particular emphasis upon the importance of fruit, vegetables and whole grain cereals. White flour, cane and beet sugar and various highly processed cereals are listed as "fundamental prohibitions" and there is a suggestion that a meatless diet is probably the most healthful.

Diet in relation to dental diseases, cancer, mental diseases, tuberculosis, and other specific diseases is discussed. The author states that defective diet is perhaps a predisposing factor in dental diseases and tuberculosis; that the etiology of cancer, mental diseases and other degenerative conditions may be somewhere in the domain of nutrition, the basis possibly being malnutrition or some specific dietary deficiency.

This book is written in a scholarly fashion, and it is interesting even though it is not altogether in accord with present-day ideas concerning nutrition. Its contents demand thought and could very readily lead to further research upon the relation of diet to the physical and mental welfare of mankind.

M. M. W.

# INDEX

## THE JOURNAL OF THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA

### Volume 7

### July 1937-June 1938

#### EXPLANATORY NOTES

**Arrangement of Index**

The index is arranged under the following headings:

I. Authors.
II. Subjects.
III. Editorials.
IV. Transactions of the Association, 1937.
V. The Association Forum.
VI. Committee Contributions.
VII. Department of Public Health.
VIII. Book Abstracts and Reviews.

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#### I. AUTHORS


B

Baker, J. N.—Sulfanilamide 192.
Bancker, E. A.—The modern treatment of pneumonia 218.
Bennett, T. L., Jr.—Management of occiput posterior positions 256.

C

Camp, J. S., and Sherer, R. J.—Rupture of a ventral hernia by trauma, a case report 297.
Carmichael, J. L., and Posey, L. C.—On the relation of epithelioma to chronic ulceration of the skin, with report of 5 cases 361.
Carter, M. Barfield—Paget's disease (osteitis deformans) 157.
Clements, F. H.—Some things about the eye of interest to the general physician 416.
Clements, R. M.—Psychologic aspects of eye, ear, nose and throat diseases 222.

D

Daves, J. G.—Tuberculosis as I have found it 291.
Donald, D. C.—Diagnosis and management of colon lesions 181.
Douglas, G. F.—Sterility, study with the uterotubal insufflation apparatus 259.
Dowling, J. D., and Denison, G. A.—Lobar pneumonia, etiologic diagnosis and specific treatment 212.

F

Finney, J. O.—Disease of the cardiovascular system as an industrial hazard 185.
Frank, H. W.—General medicine and the eye 328.

G

Garber, J. R.—Obstetric problems from the medical viewpoint 446.
Givhan, E. G., Jr., and Boozer, T. S.—The treatment of tetanus, analysis of 36 cases 407.
Graves, Stuart—"The old school and the new" 163.
The relation of public welfare and industrial development to public health and medical education in Alabama 402.

H

Harris, Seale, Jr.—Cardiovascular syphilis 46.
Hill, R. S.—Some thoughts on the medical profession 397.

J

Jackson, A. C.—Treatment of fractures of the surgical neck and shaft of the humerus 253.
Johnson, H. D.—Presacral sympathectomy in dysmenorrhea 105.

K

Kay, F. A.—The patient as a personality 249.
Metrazol treatment of psychoses 450.

L

Lahey, F. H.—Cancer of the colon and rectum (1937 Jerome Cochran lecture) 1.
Lamar, C. L.—Contraception, sociologic aspects 281.

M

McBurney, Ralph—Ptomaine poisoning, a misnomer 357.
McKay, H. W.—Certain phases of pediatric urology 145.
Meeker, W. R., and Muscat, J. O.—Ureterodural anastomosis in hydrocephalus 119.
Morgan, J. O.—Mucocele of the appendix, report of 2 cases 14.
Musser, J. H.—Treatment of organic and inorganic diseases of stomach 441.

N

Nodine, E. R.—The modern role of peroral endoscopy 53.
Norris, E. W.—Syphilis 41.

P

Partlow, W. D.—Psychiatry adrift with the times 209.
Peake, J. D.—Carcinoma of the cervix, report of 186 cases 113.

Q

Queen, W. F.—Occupational diseases, a program for their control in Alabama 367.

R

Riggs, F. W.—Scabies 226.
Robertson, J. P.—Diagnosis of early syphilis, darkfield examinations by the capillary tube method 51.
Syphilis, observations based on 120,600 treatments 293, 331 and 372.
Robinson, E. B., Jr.—Technique of anesthesia, as practiced at Employees Hospital 321.
Russell, R. O.—Multiple neuritis 187.

S

Scott, W. F., Collins, T. A., and Singer, P. L.—Papilloma of the urethra in an infant 370.
Snelling, D. B.—The new protamine insulin in the treatment of diabetes mellitus 9.
Stabler, E. V.—Simple cysts of the ovary 150.

T

Terhune, S. R.—The mechanical treatment of cervical arthritis 255.
Thames, Eugene—The undulant fever problem, a new and promising idea as to the treatment of the chronic case 411.
Thorington, Chilton—Out of the ordinary 190.
Tracy, Anna M.—The dietitian 155.
Turley, H. K.—Pyelonephritis of pregnancy 326.
Turlington, L. F.—Contraception, technique of contraception 287.

W

Walsh, Groesbeck—The psychogenic factor in disease 111.
Psychogenic factors in medical history 455.
Wilson, J. M.—Hyperthyroidism, importance of early recognition and treatment 116.

## II. SUBJECTS

A

Anesthesia, technique, as practiced at Employees Hospital (Robinson) 321.
Appendix, mucocele, report of 2 cases (Morgan) 14.
Arthritis, cervical, mechanical treatment (Terhune) 255.

C

Cancer, colon and rectum (Lahey) 1.
Carcinoma of cervix, report of 186 cases (Peake) 113.
Colon lesions, diagnosis and management (Donald) 181.
Contraception—Sociologic aspects—Part 1 (Lamar) 281.
Technique of contraception—Part II (Turlington) 287.
Cysts of ovary, simple (Stabler) 150.

D

Dietitian (Tracy) 155.
Disease of the cardiovascular system as an industrial hazard (Finney) 185.
Dysmenorrhea, presacral sympathectomy for (Johnson) 105.

E

Endoscopy, peroral (Nodine) 53.
Epithelioma, relation to chronic ulceration of the skin, report of 5 cases (Carmichael and Posey) 361.
Eye, some things of interest to the general physician (Clements) 416.

F

Fractures of surgical neck and shaft of humerus, treatment (Jackson) 253.

G

General medicine and the eye (Frank) 328.

H

Hydrocephalus, ureterodural anastomosis (Meeker and Muscat) 119.
Hyperthyroidism, importance of early recognition and treatment (Wilson) 116.

I

Insulin, new protamine, in treatment of diabetes mellitus (Snelling) 9.

L

Lobar pneumonia, etiologic diagnosis and specific treatment (Dowling and Denison) 212.

M

Metrazol treatment of psychoses (Kay) 450.
Multiple neuritis (Russell) 187.

O

Obstetric problems from medical viewpoint (Garber) 446.
Occiput posterior positions, management (Bennett) 256.
Occupational diseases, program for control in Alabama (Queen) 367.
Out of the ordinary (Thorington) 190.

P

Paget's disease—ostetitis deformans (Carter) 157.
Papilloma of the urethra in an infant (Scott, Collins and Singer) 370.
Pneumonia, modern treatment (Bancker) 218.
Psychiatry adrift with the times (Partlow) 209.
Psychogenic factor in disease (Walsh) 111.
Psychologic aspects of eye, ear, nose and throat diseases (Clements) 222.
Ptomaine poisoning, a misnomer (McBurney) 357.
Public welfare and industrial development, relation to public health and medical education in Alabama (Graves) 402.
Pyelonephritis of pregnancy (Turley) 326.
Psychogenic factors in medical history (Walsh) 455.

R

Rupture of a ventral hernia by trauma, a case report (Camp and Sherer) 297.

S

Scabies (Riggs) 226.
Some thoughts on the medical profession (Hill) 397.
Sterility, study with the uterotubal insufflation apparatus (Douglas) 259.

Stomach, treatment of organic and inorganic diseases (Musser) 441.
Sulfanilamide (Baker) 192.
Syphilis (Norris) 41.
Syphilis, cardiovascular (Harris) 46.
diagnosis of, early darkfield examinations by the capillary tube method (Robertson) 51.
observations based on 120,600 treatments (Robertson) 293, 331 and 372.

T

Tetanus, treatment, analysis of 36 cases (Givhan and Boozer) 407.
"The old school and the new" (Graves) 163.
The patient as a personality (Kay) 249.
Tuberculosis as I have found it (Daves) 291.

U

Undulant fever problem, new and promising idea as to treatment of chronic case (Thames) 411.
Urology, pediatric, certain phases (McKay) 145.

## III. EDITORIALS

A

Amendments to the rules governing medical examinations 337.
Analgesia in labor 55.
Arsenical poisoning 168.

B

Black widow spider 122.

C

Carcinoma in young people 458.

D

Diagnosis of coronary disease 336.
Diuretics 168.
Drugs used in the eradication of hookworm 54.

E

Expansion of health services 377.

F

Fees for vaccine administration resumed 19.

L

Late results in the conservative treatment of nephrolithiasis 376.
Lymphogranuloma inguinale 268.

M

Medical care and the Federal Resettlement Administration 123.
Medical cooperation in rehabilitation, an important action of the Association 420.
Medical participation in plans of medical care for all groups of society 298.
Medical progress and the public mind 194.
Mobile meeting 420.

P

Postarsphenamine exfoliative dermatitis 229.
Principles and proposals of the Committee of Physicians 228.

R

Refresher courses in venereal disease control 123.

S

Study of medical care 458.

T

Taxing provisions of the Social Security Act relating to the profession 56.
The Atlantic City meeting of the American Medical Association 19.
The death of a doctor 18.
Treatment of eclampsia 299.
Treatment of malaria 195.

V

Vomiting of pregnancy 423.

## IV. TRANSACTIONS OF THE ASSOCIATION

### 1937 Session and Part I of 1938

Committee reports 26, 467.
Officers of the Association 84.
President's message 21, 460.
Registration at 70th consecutive annual session 85.
Report of Secretary 24, 463.
Report of State Board of Censors 57.
as Board of Medical Examiners 66.
as State Committee of Public Health 66.
Report of Treasurer 24, 465.
Report of Vice-Presidents 22, 462.
Revision of rolls 78.
Roll of correspondents 82.
Roll of counsellors, alphabetically 80.
by districts 81.
Schedule of annual sessions and presidents 82.
Schedule of Jerome Cochran lecturers 83.
Secretaries of M. A. S. A. 83.
Summary of annual attendance 89.
Treasurers of M. A. S. A. 83.

## V. THE ASSOCIATION FORUM

Important health legislation pending in the Federal Congress 378.
Medical cooperation with the public health profession 230.
Medical cooperation with federal plans for rehabilitating rural families falling into the lowest income brackets 300.
New strides and new goals for Alabama's Health Department 125.
What significance has Alabama's declining medical population? 424.

## VI. COMMITTEE CONTRIBUTIONS

Annual report of the Committee on Maternal and Infant Welfare 169.
Committee on Prevention of Cancer 337.
Committee on Public Relations 302, 339.
Medical rehabilitation plans unfold (Public Relations) 459.
Pneumonia (Postgraduate Study) 196.
When do we learn? (Committee on Maternal and Infant Welfare) 128.

## VII. DEPARTMENT OF PUBLIC HEALTH

A

Alabama's oral hygiene problem 37.
Alabama's toll in accidental deaths 310.
Almshouses as tuberculosis sanatoria 175.
A method of artificially feeding the normal infant 315.
An epochal constitutional amendment, authorizing Limestone County to levy tax for malaria control 388.
Annual report of a small tuberculosis sanatorium 430.
Automatic sterilization of swimming pool water versus hand methods 180.

B

Bacterial flora of milk 381.
Blood cultures for Brucella 475.

C

Care of the premature baby 240, 272.
Changing trends in sanitation work 317.
Clinics and clinicians 385.
Communicable diseases during 1937, 313.
Community immunization for tuberculosis 238.
Conditioning of public water supplies, in reference to dissolved chemicals—hardness 201.
Continuity of treatment in syphilis 36.
County health nurse, services 132.
Current statistics 39, 97, 136, 180, 203, 243, 274, 319, 352, 393, 437, 483.

D

Diarrhea and enteritis (under two years) 432.
Diphtheria, analysis of 830 cases occurring in Alabama during 1937, 384.
Diphtheria and immunization 200.
Director of Laboratories 381.

E

East Alabama Health District studies in administrative procedure 346.
Endemic typhus fever, history, its incidence and distribution in Alabama, 1933 through 1937, 350.
Endemic typhus fever, history, its prevalence and distribution in Alabama 92.

I

Immunity in malaria 34, 89, 129, 172.

M

Malaria control activities for 1937, 241.
Maternal care in Alabama 200.
May Day 383.
Measles 348.
Meningitis in Alabama 36.
Mineral salts in public water supplies, physiological aspects 389, 433.
Mouth hygiene activities 93.

N

New regulations, State Committee of Public Health adopts 133.
Non-intravenous treatment of early syphilis 314.
Nutrition program, Alabama's 349.
and pellagra 475.

P

Pediatric consultation service widely used by physicians 174.
Pellagra 94, 135.
Permanent improvement for municipal mosquito control 38.
Plural births 271.
Populations 479.

R

Rendering public service 239.

S

Smallpox epidemic 477.
Specimen containers, cost 347.
Specimens examined 381, 429, 475.
State Board of Health adopts new food regulations 273.
Stillbirth rates 350.
Summer roundup of preschool children 431.
Syphilis continuity of treatment 36.
control 132.
darkfield in diagnosis 270.
early treatment 477.
education 270.
epidemiologic investigation 431.
indigent patient with 201.
modifications in laboratory diagnosis 429.
non-intravenous treatment of early 314.
precipitation tests in diagnosis 237.
treatment pit-falls in 91.
visual education 175.
what constitutes a diagnosis? 348.

T

The laboratory diagnosis of lobar pneumonia 313.
The principles of medical statistics 317.
Trend in municipal sewage treatment 481.
Tuberculosis lesion, early 386.
Tuberculosis, still a problem in Alabama 131.
subsidy becomes available 269.
Typhoid fever in Alabama 91.

V

Vital statistics report, 1937, provisional 384.

W

Wassermann test 197.

## VIII. BOOK ABSTRACTS AND REVIEWS

A

A brief outline of modern treatment of fractures: Spiers 102.
A diabetic manual: Joslin 208.
A five-year study of tuberculosis among Negroes: National Tuberculosis Association 139.
A laboratory manual of physiological chemistry: Wilson 99.
Alcohol—one man's meat: Strecker and Chambers 440.
America's purpose: Snyder 437.
An introduction to dermatology: Sutton and Sutton 141.
Annual reprints of the reports of the Council on Pharmacy and Chemistry 138.
A preface to nervous disease: Cobb 138.
A primer for diabetic patients: Wilder 276.
A textbook of medicine: Edited by Russell L. Cecil 245.
A textbook of pathology—an introduction to medicine (Boyd) 486.
A text-book of surgical nursing: Brooks 104.

C

Cancer and diet, with facts and observations on related subjects: Hoffman 99.
Clinical allergy: Tuft and Kolmer 141.
Clinical laboratory diagnosis: Levinson and MacFate 243.
Clinical parasitology: Craig and Faust 319.
Clinical toxicology—modern methods in the diagnosis and treatment of poisoning: Leschke 320.
Concepts and problems of psychotherapy: Hinsie 206.

Conquest of cholera: Chambers 483.
Crippled children—their treatment and orthopedic nursing: McBride and Sink 247.

E

Emotional adjustment in marriage: Clark 140.
Essentails of prescription writing: Eggleston 396.
Eugenical sterilization—a reorientation of the problem: Committee of the American Neurological Assoc. for the Investigation of Eugenical Sterilization 100.
Eyestrain and convergence: Stutterheim 277.

G

General hygiene and preventive medicine (Weinzirl) 486.

H

Handbook of health education—a guide for teachers in rural school: Grout 354.
Handbook on nasal accessory sinuses: Alloway 396.
Health education of the public: Bauer and Hull 102.
Hernia: Watson 484.
Human helminthology: Faust 320.

I

Industrial poisons in the United States: Hamilton 320.

L

Layman's handbook of medicine: Cabot 483.
Length of life: Dublin and Lotka 244.
Life and death, the autobiography of a surgeon: Majocchi 97.
Lobar pneumonia and serum therapy: Lord 319.

M

Macleod's physiology in modern medicine: Bard and others 438.
Malnutrition, the medical octopus: Sutherland 485.
Man in a chemical world: Morrison 100.
Management of the sick infant and child: Porter and Carter 485.
Manual of clinical and laboratory technic: Weiss and Isaacs 247.
Manual of public health laboratory practice: Currie 100.
Materia medica, pharmacology, therapeutics and prescription writing: Bastedo 208.
Maternal care—the principles of antepartum, intrapartum and postpartum care for the practitioner of obstetrics: Danforth, Kosmok, DeNormandie and Adair 396.
Medical urology: Koll 102.
Medical writing: Fishbein 483.
Mentality and homosexuality: Kahn 354.
Methods of treatment: Clendening 246.
Municipal and rural sanitation: Ehlers 97.

N

New and nonofficial remedies, 1937: 139.
Nutrition in relation to health, etc.: League of Nations 487.
Nutritive aspects of canned foods: Nutrition Laboratory, Research Dept. of American Can Co. 100.

O

Obstetric and gynecologic nursing: Falls and McLaughlin 142.
Obstetrics for nurses: DeLee and Carmon 205.
Operative gynecology: Crossen and Crossen 438.

P

Personal hygiene: Turner 104.
Personal policies in public health nursing: Randall 354.
Physical diagnosis: Sutton 206.
Physicians and medical care: Brown 103.
Pneumonia and serum therapy: Lord and Heffron 439.
Practical bacteriology, hematology and animal parasitology: Stitt, Clough and Clough 484.
Practical proctology: Buie 277.
Psychiatric nursing: Sadler, Sadler and Kellogg 208.
Pulmonary tuberculosis in practice—modern conception: Wingfield 396.

S

Safely through childbirth—a guide book for the expectant mother: Rongy 439.
Shadow on the land: Parran 206.
Short wave diathermy: de Cholnoky 103.
Surgical pathology of the diseases of the neck: Hertzler 484.
Synopsis of digestive diseases: Kantor 103.
Synopsis of genito-urinary diseases: Dodson 247.
Synopsis of gynecology: Crossen and Crossen 103.
Synopsis of pediatrics: Zahorsky 104.
Syphilis—The next great plague to go: Fishbein 141.

T

Textbook of ophthalmology: Gifford 484.
The business side of medical practice: Wiprud 207.
The cerebrospinal fluid: Merritt and Fremont-Smith 246.
The collected papers of the Mayo Clinic and the Mayo Foundation: Hewitt, Potter and Nevling 102.
The dynamics of therapy: Taft 205.
The first supplement to the pharmacopeia of the United States of America: 142.
The laboratory diagnosis of syphilis: Eagle 320.
The larynx and its diseases: Jackson and Jackson 104.
The management of fractures, dislocations and sprains: Key and Conwell 246.
The nineteen thirty seven year book of dermatology and syphilology: Wise and Sulzberger 485.
The pneumonokonioses (silicosis)—literature and laws—Book III: Davis, Salmonsen and Earlywine 355.
The sputum, its examination and clinical significance: Clifford 320.
The technic of local anesthesia: Hertzler 142.
The traffic in health: Solomon 207.
Treatment in general practice: Beckman 483.
Tuberculosis among children and young adults: Myers 486.
Tuberculosis education: Rood 140.
Twenty-five years of health progress: Dublin and Lotka 243.

V

Vitamins in theory and practice: Harris 142.

W

Workbook in elementary diagnosis for teaching clinical history recording and physical diagnosis: Clendening 437.

# Miscellany

## Truth About Medicines

NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Sulfanilamide Tablets, 7½ grains.—Each tablet contains sulfanilamide-Lilly (New and Nonofficial Remedies, 1938, p. 453), 7½ grains. Eli Lilly & Co., Indianapolis, Ind.

Ampoules Silver Nitrate Solution, 1 per cent-Abbott.—Each wax ampule contains approximately 0.5 cc. of a solution of silver nitrate, U. S. P. (New and Nonofficial Remedies, 1938, p. 47), 1 per cent in chemically pure water. Abbott Laboratories, North Chicago, Ill.

Procaine Hydrochloride, 1/3 grain-Epinephrine, 1/4,000 grain Hypodermic tablets.—Each tablet contains procaine hydrochloride-Abbott (New and Nonofficial Remedies, 1938, p. 77), 0.02 Gm. (1/3 grain), epinephrine 0.000016 Gm. (1/4,000 grain), sodium bisulfite 0.0016 Gm. (1/40 grain) and sodium chloride sufficient so that when the tablet is dissolved in 1 cc. of water the resulting solution is approximately isotonic. Abbott Laboratories, North Chicago, Ill. (J. A. M. A., April 2, 1938, p. 1111)

Ampoules Ephedrine Hydrochloride 2½% and Procaine Hydrochloride 1%, 2 cc.—Each ampoule contains ephedrine hydrochloride 2.5 per cent and procaine hydrochloride (New and Nonofficial Remedies, 1938, p. 77) 1 per cent in chemically pure water to make 2 cc. Abbott Laboratories, North Chicago, Ill.

Ampoules Ephedrine Hydrochloride 5% and Procaine Hydrochloride 1%, 1 cc.—Each ampoule contains ephedrine hydrochloride 5 per cent and procaine hydrochloride (New and Nonofficial Remedies, 1938, p. 77) 1 per cent in chemically pure water to make 1 cc. Abbott Laboratories, North Chicago, Ill.

Solution of Adrenalin Chloride 1:100, 5 cc. vials.—A solution containing 1 part adrenalin (as adrenalin chloride) (New and Nonofficial Remedies, 1938, p. 231) in 11 parts of physiological solution of sodium chloride preserved by the addition of 0.5 per cent of chloretone and not more than 0.1 per cent of sodium bisulfite. Recent evidence indicates that the oral inhalation of a solution of epinephrine ten times stronger than those used by hypodermic injection gives relief in acute attacks of bronchial asthma when other measures fail. Every precaution must be taken to avoid confusion between this solution (1:100) and the official 1:1,000 solution of epinephrine hydrochloride, since the 1:100 solution is not suitable for hypodermic use and should never be employed in that manner. Parke, Davis & Co., Detroit, Mich.

Sulfanilamide tablets, 7½ grains.—Each tablet contains sulfanilamide—P. D. & Co. (New and Nonofficial Remedies, 1938, p. 231) 7½ grains. Parke, Davis & Co., Detroit, Mich, (J. A. M. A., April 9, 1938, p. 1193)

Staphylococcus Toxoid—P. D. & Co.—A detoxified staphylococcus toxin (New and Nonofficial Remedies, 1938, p. 422) prepared by treatment of the toxin with a 0.3 per cent formaldehyde solution at 37 C. The material is preserved with 0.01 per cent merthiolate (sodium ethyl-mercuri thiosalicylate) and the usual sterility tests required by the National Institute of Health are made. Staphylococcus toxoid is tested for dermo-necrotic and lethal innocuity according to methods outlined by the National Institute of Health. Each of the two strengths is marketed in 5 cc. rubber diaphragm stoppered bottles. Parke, Davis & Co., Detroit, Mich.

Hypodermic Tablets Dilaudid Hydrochloride, 1 mg. (1/64 grain).—Each tablet contains dilaudid hydrochloride (New and Nonofficial Remedies, 1938, p. 317) 1 mg. (1/64 grain). Bilhuber-Knoll Corporation, Jersey City, N. J.

Hypodermic Tablets Dilaudid Hydrochloride, 1.25 mg. (1/48 grain).—Each tablet contains dilaudid hydrochloride (New and Nonofficial Remedies, 1938, p. 317) 1.25 mg. (1/48 grain). Bilhuber-Knoll Corporation, Jersey City, N. J.

I. V. C. Viosterol (A. R. P. I. Process) in Oil.—A brand of viosterol in oil—N. N. R. (New and Nonofficial Remedies, 1938, p. 482). I. V. C. Viosterol (A. R. P. I. Process) in Oil is prepared by activation of purified ergosterol by low velocity electrons. The activated ergosterol is refined

and dissolved in vegetable oil. The final product when assayed according to the U. S. P. method, has not less than the vitamin D potency of viosterol in oil—N. N. R. International Vitamin Corporation, Inc., New York. (J. A. M. A., April 23, 1938, p. 1344)

## ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following devices have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Western Electric 3-A Electrical Stethoscope.—This portable electrical stethoscope is designed to aid the physician in hearing heart sounds and in diagnosing heart ailments. It has been developed particularly for physicians with impaired hearing, according to the firm. However, it is equally recommended to physicians with normal hearing in examining thick-chested individuals or detecting heart conditions during their early stages. It is claimed by the firm that other useful applications will be found in obstetric and lung fields. The Electrical Stethoscope essentially consists of a sensitive microphone, a vacuum tube amplifier and a receiver to reproduce the sounds. The two-stage amplifier, operated by dry batteries, will increase the loudness of the heart sounds about 20 decibels, or 100 times the intensity obtained with an ordinary acoustical stethoscope. The amplifier contains a filter which may be cut in or out of the circuit by means of a switch. The filter control diminishes the response at both the low and high frequencies; thus the intensity of normal heart sounds is lowered and the loudness of any existing murmurs is accentuated by the isolation. The Council reported that the instrument distorts in a measure the heart and breath sounds so that a certain amount of experience is necessary to learn the normal sounds as produced by it. Western Electric Company, New York. (J. A. M. A., April 2, 1938, p. 1111)

## PROPAGANDA FOR REFORM

Bile Salts and Arthritis.—Hench (Arch. Int. Med. 61:451 (March 1938) has just made available the results of clinical and chemical studies on thirty-one patients whose rheumatic symptoms were partially or completely relieved coincidentally with the onset of spontaneous jaundice. Attempts to reproduce the relief by administration of whole bile and certain of its constituents were made. Transfusions of deeply jaundiced blood were tried and jaundice was produced by the administration of toluylenediamine; by these means and with the rather small doses used, the phenomenon of arthritic relief was not reproduced. Thompson and Wyatt (Arch. Int. Med. 61: 481 (March) 1938) administered a combination of bilirubin and bile salt to eight patients with chronic atrophic arthritis. The combination of bilirubin and bile salt given by the technic which these investigators finally found satisfactory appeared to be effective in the amelioration of symptoms of atrophic arthritis, although neither of the constituents alone produced this effect. Further study and confirmation are required before these observations can be applied generally in the treatment of atrophic arthritis, but the preliminary observations seem most suggestive of a new avenue of approach to this difficult problem. (J. A. M. A., April 30, 1938, p. 1493)

Thiamin Chloride and Nicotinic Acid in Pellagra.—Spies and Aring (The Journal A. M. A., April 2, 1938, p. 1081) report on the effect of the administration of vitamin $B_1$ in six cases of classic pellagra with peripheral neuritis. Irrespective of the cause of the pellagra, prompt relief of spontaneous neuritic pain resulted from the intravenous injection of thiamin chloride (crystalline vitamin $B_1$ hydrochloride). These observations suggest that vitamin $B_1$ deficiency plays a part in the development of clinical manifestations of peripheral neuritis associated with pellagra. The vitamin $B_1$ does not appear to cure the glossitis and stomatitis of pellagra but nicotinic acid, which has been referred to in The Journal A. M. A. (Jan. 22, 1938, p. 289; Feb. 26, 1938, p. 622), does relieve these symptoms. The Cincinnati investigators have demonstrated that all types of pellagra are benefited within twenty-four to forty-eight hours after the administration of nicotinic acid. Certainly both thiamin chloride and nicotinic acid deserve further intensive study in their relation to pellagra. (J. A. M. A., April 2, 1938, p. 1115.)



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